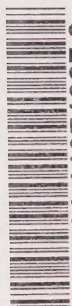
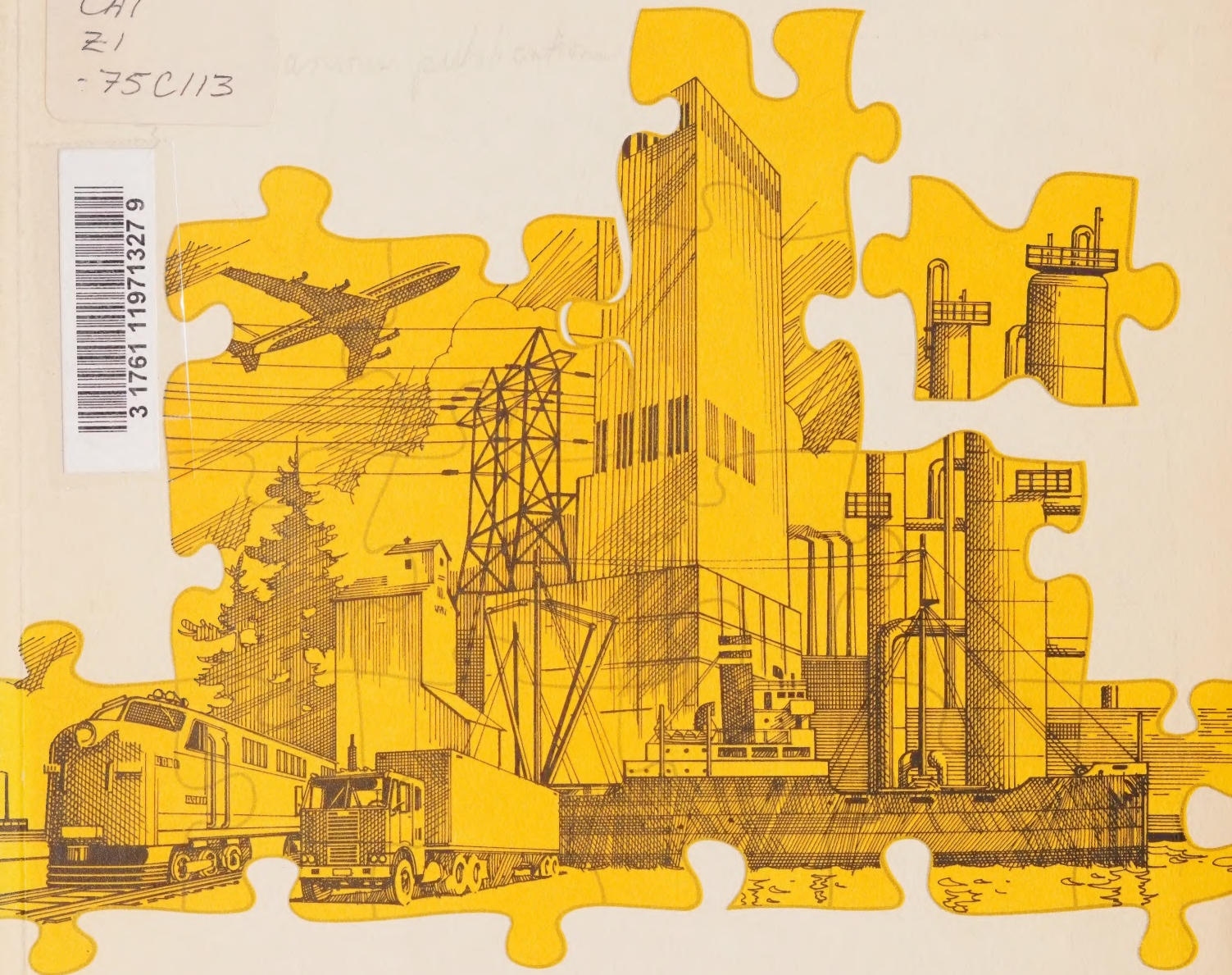


# Royal Commission on Corporate Concentration

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STUDY NO. 13

**Alcan Aluminium Limited**

A Case Study



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# Royal Commission on Corporate Concentration

## Study No. 13

### Alcan Aluminium Limited

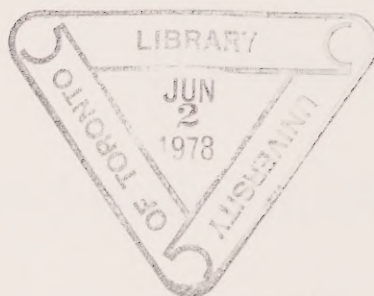
#### A Case Study

by

Isaiah A. Litvak and Christopher J. Maule

Department of Economics  
and  
School of International Affairs  
Carleton University  
Ottawa

February 1977



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## FOREWORD

In April 1975, the Royal Commission on Corporate Concentration was appointed to "inquire into, report upon, and make recommendations concerning:

- (a) the nature and role of major concentrations of corporate power in Canada;
- (b) the economic and social implications for the public interest of such concentrations; and
- (c) whether safeguards exist or may be required to protect the public interest in the presence of such concentrations".

To gather informed opinion, the Commission invited briefs from interested persons and organizations and held hearings across Canada beginning in November 1975. In addition, the Commission organized a number of research projects relevant to its inquiry.

One such project resulted in a series of case studies, of which this is one, dealing with the history and economic and social impacts of large and diversified corporations in Canada.

This study on Alcan Aluminium Limited was prepared by Isaiah A. Litvak and Christopher J. Maule of Carleton University in Ottawa. Professors Litvak and Maule have previously collaborated on the writing and editing of three books and thirty articles on international business and industrial organization. Their work was carried out with the cooperation and assistance of Alcan, however the facts expressed and conclusions drawn are the responsibility of the authors and not the company.

The Commission is publishing this and other background studies in the public interest. We emphasize, however, that the analyses presented and conclusions reached are those of the author, and do not necessarily reflect the views of the Commission or its staff.

Donald N. Thompson  
Director of Research

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# 1

## ALCAN - AN OVERVIEW

### INTRODUCTION

The terms of reference for this study are to examine the origins and evolution of Alcan Aluminium Limited, with emphasis on the Canadianization of its operations over time; the corporate strategy of the firm and the associated organizational structure; and the economic and social impact of the Company on Canada.

The study is organized as follows: in Chapter 1, the reader is introduced to the key characteristics of the international aluminum industry, and is provided with an overview of some of the salient features of Alcan based on the material in the subsequent chapters. The second chapter traces the history of Alcan, highlighting the Alcoa relationship and the impact of U.S. anti-trust policy. Chapter 3 contains a detailed discussion of the different corporate strategies and structures employed by Alcan from its inception to its present status as a leading multinational corporation. Finally, Chapter 4 examines the economic and social impacts that Alcan has had on Canada.

The framework for the study drew extensively upon elements in the literature on management and economics, especially industrial organization, and in part on literature in law. At the outset, a historical approach was taken to describe the origin and evolution of Alcan specifically in terms of its managerial and legal relationship to Alcoa. The work on corporate strategy and structure was used to examine the nature and reasons for the strategy pursued by the decision-makers and the organizational structure employed. This approach was combined with the literature in industrial organization on vertical integration and

market failure in order to understand the forces external to the firm that affected its development over time. Finally, the impact of Alcan on Canada was evaluated in two ways: the economic impact, using the performance criteria associated with micro-economic theory and the examination of accounting records; and the social impacts, for which there is no widely used comprehensive framework, so that our procedure was to highlight a list of issues with some comparisons made to similar situations.

The data for this study were collected from a wide variety of published sources and extensive personal interviews. Alcan cooperated fully in providing information for the study. The published sources included company annual reports; publications; press releases and submissions to governments; the 10-K Reports submitted to the Securities and Exchange Commission in the U.S.; commodity and industry studies by commodity specialists and investment analysts; reports by industry associations and government and international agencies; court records; company histories; and academic studies. Interviews were conducted with the authors of many of these publications, with company officials past and present, with officials of other companies knowledgeable about the aluminum industry, with government officials, union representatives and academics.

When collecting data, the authors first made an intensive study of all published sources before conducting interviews with company officials. In this way, it was possible to ask questions against a background of knowledge of the firm and the industry, and to focus immediately on those topics which were of relevance to the study. It should be noted that information about a company is not concentrated at one point in the company, so that a number of officials need to be interviewed. This results in a situation in which different sources within a company, especially a large organization, will have different interpretations of events which have taken place.

## THE ALUMINUM INDUSTRY

### THE PRODUCTION PROCESS

Aluminum is a metal whose characteristics make it suitable for use in a variety of end products especially in the construction, transportation, packaging and electrical industries. The production process involves three distinct stages, bauxite, alumina and aluminum, prior to the fabrication of aluminum mill products and end products. Depending on the end use, aluminum competes with numerous other products, e.g., copper, steel, glass, cement, tin, wood, plastics and cardboard.

Bauxite, the principal ore of aluminum, is composed mainly of hydrated alumina and is formed by the weathering of such aluminum-bearing rocks as granite, dolerite and basalt. Although bauxite is found throughout the world, some of the richest deposits occur in tropical countries such as Guyana (formerly British Guiana), Jamaica, Surinam and Guinea as well as in Australia and Brazil. Bauxite mining (Stage 1) involves the extraction of ore, crushing, washing and drying in preparation for the production of alumina, the intermediary stage between bauxite and aluminum.

Alumina (Stage 2) is produced by grinding bauxite to a coarse powder and mixing it with caustic soda. The subsequent chemical process under high temperature and pressure dissolves the alumina and leaves the impurities, mainly iron and silicon, as insoluble red mud. The solution containing the alumina as sodium aluminate is seeded and washed in order to remove the sodium hydroxide, and it is then calcined at  $1600^{\circ}\text{F}$  to drive off the water to produce anhydrous alumina, ( $\text{Al}_2\text{O}_3$ ).

In the smelting process (Stage 3), alumina is dissolved in a bath of molten cryolite. A direct current, passing through the cryolite electrolyte between the anode (a block of carbon that

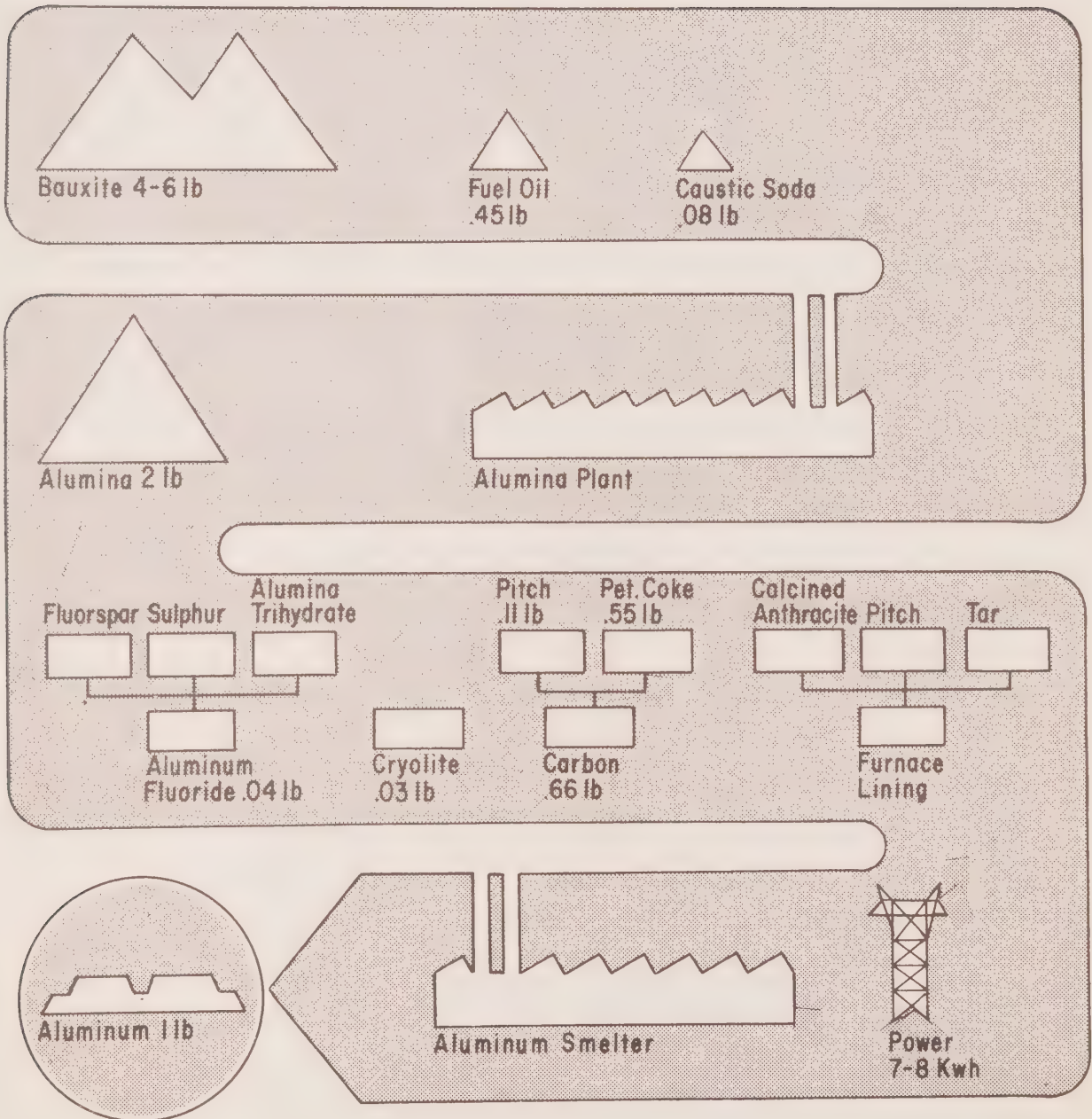


dips into the electrolyte) and the cathode (the carbon lining of the electrolytic cell or pot) breaks up the alumina into aluminum and oxygen. The oxygen combines with the carbon of the anode to form carbon dioxide, and the metallic aluminum sinks and is deposited in a molten pool to be siphoned off into a holding furnace. At this point alloys can be added prior to casting into molds of various ingot shape. Ingot is the raw material from which aluminum products are fabricated. For each 1 lb. of aluminum produced, about 5 lbs. of bauxite are required from which 2 lbs. of alumina are extracted. The remaining principal inputs are shown in Exhibit 1. The production process up to this point is concerned with separating the aluminum (Al) from the aluminum-bearing raw material, bauxite, ( $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ ).

Aluminum is used in the following industry areas in Canada: building and construction 28%; electrical 25%; transportation 19%; canning and packaging 9%; consumer goods 7%; machinery and equipment 6%; other 6%. In order to be suitable for these uses, the aluminum ingot is fabricated into a number of mill products: sheet and plate; rod, bar and cable; extrusions; castings; and powder. Some aluminum is recovered from scrap metal. Recycling takes place in two ways: first, new scrap is generated from the fabrication stages, especially the production of mill products; and second, old scrap is extracted from used end products containing aluminum. The production of new scrap is tied to the fabrication of aluminum and most of it can be and is recycled: the production of secondary aluminum from old scrap can be expanded depending on the costs of collection and extraction and the price of aluminum.

Exhibit 1

Production Stages: Bauxite to Aluminum



## THE PRODUCERS

The aluminum industry is an international industry. In the Western countries, six large international companies with vertically integrated operations control approximately 80% of the aluminum smelting capacity. These six producers, Alcan (Canada), Alcoa, Reynolds and Kaiser (U.S.), Pechiney (France), and Alusuisse (Switzerland) have either wholly owned or partly owned smelting capacity in 25 countries, mainly industrialized. They also operate with each other as partners in joint-venture arrangements. In addition, these companies have traditionally owned or controlled sufficient alumina capacity and bauxite deposits to feed their smelter operations. This situation has altered somewhat in recent years as nationalism in bauxite-owning developing countries, such as Guyana and Jamaica, has led to host-government participation in bauxite mining, and in alumina production when these facilities are located next to the bauxite deposits rather than the smelting operations. A further characteristic of the international industry is that because of vertical integration very little bauxite and alumina is traded on an arms-length basis, so that there is no frequently quoted price for bauxite and alumina as there is for aluminum and its mill products.

In the western world, most of the primary aluminum is consumed in those industrialized countries where smelting operations are located. For example, Table 1 shows the close parallel between smelting capacity and aluminum consumption by region.

The North American aluminum industry is dominated at the smelting stage by Alcan, Alcoa, Reynolds and Kaiser, although there have been some new entrants in recent years, including another major Canadian multinational firm, Noranda, with a smelter capacity of 140,000 tons per annum at New Madrid, Missouri. Two of the characteristics of the North American industry are its



TABLE 1

PRIMARY ALUMINUM CONSUMPTION AND ELECTROLYSIS CAPACITIES  
BY MAJOR REGIONS IN THE WESTERN WORLD, 1974

	<u>Smelting Capacity</u>	<u>Primary Aluminum Consumption</u>
Africa	2.3%	1.1%
North America	47.8	45.5
Latin America	2.3	6.8
East Asia	11.3)	14.7
South Asia	3.3)	
Europe	30.0	30.1
Oceania	3.0	1.8
	<hr/> 100.0%	<hr/> 100.0%
	<hr/>	<hr/>

Source: OECD, Industrial Adaptation in the Primary Aluminum Industry, Paris, 1976, p. 20.

dependence on imported sources of bauxite and/or alumina, which the major firms have traditionally owned or controlled, and a large number of independent fabricators that manufacture aluminum products often in competition with the major producers. In Canada, these characteristics are accentuated even further. The Canadian aluminum industry is entirely dependent on imported bauxite; smelting capacity is owned 85% by Alcan and 15% by Canadian Reynolds; Canadian consumption of aluminum products is supplied about 68% by Alcan, 20% by Canadian Reynolds and 12% by imports and secondary aluminum. Imports of aluminum account for 18% of Canadian consumption, and a high proportion of aluminum produced is exported from Canada. Consequently, the Canadian aluminum industry can be closely identified with Alcan, and the livelihood of this industry can be seen to be very dependent on external factors.

The organization of the aluminum industry, especially the extent of vertical integration, makes it difficult to measure

concentration in the industry. Market concentration can be related to each of the principal stages of production and will tend to vary by stages. Concentration at the fabrication stage is lower than at the smelting stage because of the nature and extent of vertical integration and the presence of independent fabricators. However, competition at the fabrication stage can be strongly influenced by the fact that independent fabricators have to purchase aluminum from firms with whom they have to compete in markets for aluminum products. This can give rise to the traditional 'squeeze play' in which independent fabricators find themselves being in both a vertical and horizontal competitive relationship with the large integrated firms.<sup>1</sup>

#### ALCAN--A CANADIAN MULTINATIONAL CORPORATION

In 1974, Alcan Aluminium Limited (Alcan), a Canadian company with headquarters in Montreal, ranked 79th in the "Fortune 300 Largest Industrial Corporations Outside the U.S."<sup>2</sup> Alcan had sales of approximately \$2.5 billion and assets of about \$3 billion. The Financial Post Canadian list of the 100 largest manufacturing, resource, and utility companies ranked Alcan as the sixth largest firm in Canada that year.<sup>3</sup> Alcan, however, can be viewed as Canada's leading multinational corporation on the Financial Post list, followed by Massey-Ferguson Ltd. which was ranked eighth, because the three largest firms were subsidiaries of U.S. parent companies; namely, Ford Motor Company of Canada, Imperial Oil Limited, and General Motors Limited. The fourth and fifth largest Canadian companies were Canadian Pacific Limited and Bell Canada, neither of which has internationalized its operations to the extent that Alcan has.

Measured in terms of capital employed and sales of aluminum, 45% of Alcan's fixed capital was outside of Canada, and 85% of sales were realized in foreign markets. In addition, about two-thirds of the approximately 63,000 Alcan employees work outside of Canada.

Alcan's subsidiary and related companies have bauxite holdings in seven countries, produce alumina in six, smelt primary aluminum in ten, fabricate aluminum in thirty-four, have sales outlets in over one hundred, and maintain <sup>4</sup> warehouse inventories in the larger markets.

Is Alcan a Canadian company? Many Canadians and foreigners perceive Alcan to be an American firm, not a Canadian company. However, judging by the criteria of registered ownership, location of headquarters organization, and nationality of senior management and the board of directors, Alcan is a Canadian multinational corporation. In mid-1976, the registered ownership of the more than 40 million shares of Alcan Aluminium Limited (the parent holding company) then outstanding was 49.0% in Canada, 37.3% in the U.S. and 13.7% in other countries. While there is no assurance that the registered ownership of shares in Canada is in the hands of "Canadians", the consensus is that Canadian share ownership is now equal to, if not greater than, that in the United States. Moreover, the majority of the directors and officers of Alcan are citizens of Canada. In 1976, the Canadian government, through the Foreign Investment Review Agency, acknowledged Alcan as a "Canadian" company, not bound by its regulations governing acquisitions and new investments into related and unrelated areas of Canadian business activity by "foreign-owned" firms.

The perception of Alcan as an American company has arisen from the knowledge that its corporate roots were in the United States, and that there was majority U.S. ownership of the company until



the late 1960s. At the turn of the century (July 3, 1902), the Aluminum Company of America (Alcoa) established a Canadian affiliate under the name of the Northern Aluminum Company, Limited. Some 23 years later on July 8, 1925 the corporate name was altered to the Aluminum Company of Canada, Limited, hereafter referred to as Alcan Canada, which on May 31, 1928 became the principal operating subsidiary of Aluminium Limited, the holding company now known as Alcan. This Canadian incorporated company was assigned all of Alcoa's foreign holdings except for its bauxite operations in Surinam.

The first "corporate separation" between Alcoa and Alcan appears to have been prompted more by managerial ambition, rather than possible U.S. antitrust action. Arthur Vining Davis was Chairman of the Board of Alcoa in 1928, when two of his subordinates were competing for the Presidency of the firm: Roy A. Hunt, son of Captain Alfred E. Hunt, a founding member of Alcoa, and E.K. Davis, Arthur's younger brother. The split between Alcoa and Alcan allowed A.V. Davis to appoint his brother, E.K. Davis, to the presidency of Alcan, while Alfred E. Hunt was named president of Alcoa.

In the early 1900s, Alcoa functioned largely as an entrepreneurial enterprise. Some of the key founders of the company such as the Hunts and Mellons, along with certain of the first employees appointed, particularly Arthur Vining Davis, owned and managed the enterprise. The concentration of ownership and decision-making powers allowed the small group of Alcoa executives to make decisions in a "familial" context, if so desired. This phenomenon is not unique to Alcoa and Alcan, for it appears to be evident in the case of the other two major North American aluminum producers--Kaiser and Reynolds.

On assuming the presidency of Alcan, E.K. Davis brought with him to Canada a small band of Alcoa-trained personnel who collectively were responsible for the emergence of this company as a giant industrial enterprise in Canada. Some of the Alcoa-Alcan pioneers were visible and dominant in a number of the key managerial positions and boardrooms of Alcan and its key operating subsidiary Alcan Canada up until the late 1960s. For example, Ray E. Powell, one of the early pioneers, and at one-time president of Alcan Canada, retired as Director of Alcan in 1967.

To this day, a Davis heads the operations of Alcan. E.K. Davis was president and chief executive officer of Alcan from 1928 to 1947, at which time he was replaced by his son, Nathanael V. Davis, age 33, as president and director of the company. Like his father, N.V. Davis is a citizen of the United States but has been a resident of Canada since 1958, and in 1976 he still occupies the position of chief executive officer of the company. However, as noted, the majority of the present day officers and directors are Canadian citizens, and many of them have been appointed in more recent years. The latter point may partially explain why the Canadian public still perceives Alcan to be a U.S. managed firm.

Running parallel with the managerial changes, significant developments have also dramatically altered the U.S. ownership composition of Alcan, as well as its links to Alcoa. In April of 1937 the U.S. Department of Justice filed a complaint under the U.S. antitrust laws naming as defendants Aluminium Company of America (Alcoa), 25 of its subsidiaries and affiliated companies including Alcan and 37 of its directors, officers and shareholders. The complaint alleged that Alcoa monopolized the manufacture of virgin aluminum ingot, and the sale of aluminum sheets, alloys, bars, etc. in the United States. The case was formally ended twenty years later in 1957.

Although no wrongdoing was proven by the antitrust authorities with respect to the corporate relationship between Alcoa and Alcan, the Court ordered in June of 1950 that "the shareholders of Alcoa be required to dispose of their stock interests either in Limited (Alcan) or Alcoa", to ensure the future competitiveness of the U.S. aluminum industry. Between 1928 and 1950, eleven shareholders held a major part of the stock in each of the two companies. In January 1951, the Court ordered disposal of the stock in either Alcan or Alcoa within ten years. All the principal shareholders, except E.K. Davis, elected to sell their Alcan shares, and by December 1957 the disposition order, with a small balance of shares outstanding, was completed.<sup>5</sup>

From the time the court decision was handed down, Canadian resident share ownership in Alcan has risen from 15.1% in 1950 to a high of 55% in 1972, declining to 49.0% in 1976; while U.S. resident share ownership has fallen from 84.7% in 1950 to a low of 32.5% in 1972, rising to 37.3% in 1976. The "Canadianization" of Alcan has also contributed to making this company more of a multinational corporation than any of its major competing aluminum producers, based on the criteria of nationality of ownership, executive officers and directors, and geographical distribution of assets, sales, and employment.



## THE CORPORATE STRATEGY

In 1928, Alcan had assets of \$71 million and sales of \$12 million; the comparable figures for 1975 were approximately \$3 billion and \$2.3 billion respectively. Thus, in less than five decades, Canadians witnessed the growth of a giant industrial corporation. Alcan has experienced a dramatic transformation from its early beginnings when it was largely owned and managed by its founding Alcoa entrepreneurs, to the present situation in which it has largely outgrown its entrepreneurial family origins. The growth realized by Alcan forced it to develop and alter its administrative structures at different time periods in order to manage the new complexities of its widespread geographic activities. Throughout the changes, the position occupied by Alcan Canada has been a principal one in Alcan's corporate strategy.

The growth of any such corporation is a complex process involving a blend of strategies, and the study of corporate strategy and structure has acquired increasing importance in the formulation of public policy concerned with industrial organization. One thesis, popularized by Professor Galbraith, is that large corporations build strategies and structures that insulate them from competitive market forces, and that the corporate objective of the large firm is to dominate, manipulate and control the markets in which it operates.<sup>6</sup>

The Galbraithian corporate equation for "being" (existence) is the pursuit of an acceptable level of corporate performance consistent with a strategy of market domination. If Galbraith's model is an accurate one, then the government's ability to affect the behavior of large modern firms will be constrained by the fact that "the corporation is no longer subject to market forces, either in terms of external competitive pressure or in terms of internal motivation for high economic performance".

It should be recognized, however, that bigness brings with it certain organizational demands and opportunities for the corporation. In structural terms, the combination of large and growing markets, coupled with increasing technological advances, permits large firms to exploit the benefits from increasing economies of scale, i.e., firms tend to grow bigger when they can achieve full-scale economies in such functions as manufacturing, marketing, and research and development. What the size of the firm must be to achieve full-scale plant and firm economies depends significantly on such factors as diversity of markets, servicing requirements, and the technical complexity in the manufacture of the product, as well as in the use of the product by customers. Concomitant with the growth phenomenon of the large-scale enterprise is the increasing subdivision of tasks, specialization of labor and equipment, and the organizational need to integrate structurally the various specialized units.

The point to note is that the Galbraithian model sees the large modern corporation evolve through three corporate phases of growth, each characterized by size--small, medium and large--predicated on a corporate strategy of increasing sales (growth) through market dominance and control in one industry.

The need for empirical verification of this model has led to studies at Harvard University's Graduate School of Business. The key questions examined were: first, in what ways can corporations be categorized in terms of strategy and structure; and, second, are there trends in the development of corporate strategies and structures. Major findings of the studies included the following:

1. Drawing on the pioneering work of A.D. Chandler,<sup>7</sup> it is demonstrated that there is a critical relationship between strategy and structure. Chandler notes that different corporate strategies are associated with particular types of structures.

In his study of some 70 large U.S. companies, Chandler shows that large corporations experience a developmental sequence, e.g., a corporate strategy of vertical integration tends to be managed through a structure of centralization, and when the succeeding strategy is one of diversification, the structure becomes decentralized. Thus, the relationship between strategy and structure will affect the corporation's organization of production, marketing, research and development, in addition to the nature and structural placement of such functional services as finance, transportation, design, and industrial relations. Galbraith's work did not give critical examination to the strategy-structure relationship.

2. In the late 1960s, a study of the "Fortune 500" companies was able to refine further the Chandler developmental (historical) model of the U.S. firm. It "concluded that the three stages of company evolution are not small, medium, and large, as Galbraith implies, but small, integrated and diversified".<sup>8</sup> The key variable is not one of continuing growth in size, but rather a change in corporate strategy from one of market position in one industry to one of market opportunities in several industries. Based on empirical evidence, it is asserted that the strategy of diversification appears to be a more characteristic way in which the U.S. corporation deals with uncertainty than the Galbraithian assertion re the strategy of market domination and control. Scott attributes Galbraith's failure to note this trend to the fact that while he recognized the technological impact on the corporate production process, i.e., "increasing economies of scale associated with higher volumes, more complex equipment, and larger plants", he missed out on the "impact of research and development on the creation of new products and new markets".

The major exception to this phenomenon are the so-called "dominant business companies" (i.e., those that derive 70-90% of



sales from a single business or a vertically integrated chain of businesses), especially the "dominant verticals", many of which are commodity producers and materials processors, e.g., steel, aluminum, pulp and paper. With some notable exceptions such as IBM and Xerox, these companies are the low profit performers. The dominant verticals tend to operate and compete in mature industries where demand is cyclical, growth in demand is slow, sensitivity to price is high, capital intensity is heavy, and the benefits from increasing economies of scale are very significant since specialization and integration are the keys to low cost performance. The dominant verticals appear to be caught in the specialization trap because "if the management of a dominant vertical tries to diversify, it faces a dilemma. It has so little by way of transferable skills that any area is likely to be 'new', and therefore difficult".

Alcan is a dominant vertical company which competes in a mature industry and conforms to the pattern of being a low profit performer. The company has grown rapidly from a relatively small firm to one of giant proportion, even in global terms. Moreover, the company's corporate thrust has changed from being chiefly a producer and exporter of primary aluminum to a large vertically integrated producer which increasingly consumes its own primary aluminum output in its worldwide fabricating plants, producing a myriad of industrial and consumer goods manufactured out of aluminum. The factors which stimulated the growth and change in Alcan's corporate strategy can be best understood by highlighting the key corporate phases experienced by the firm to date.

The first principal corporate phase was the decade following the incorporation of the company in 1928. This was a period of organizing, integrating and extending Alcan's assets and sales in Canada and abroad, especially in British Guiana, England and Norway.

The impact of the economic depression limited the scope for sales, and dissuaded the company from implementing all of its corporate investment intentions in Canada. Corporate sales increased from \$12 million in 1928 to \$49 million in 1937, while assets grew from \$71 million to \$98 million for the same period.

The second corporate phase was the "War" phase, and commenced in 1938. Expansion of Alcan plants for production and fabrication was made necessary to meet the military requirements of the allied governments, particularly Canada, the United Kingdom and the United States. The governments of these countries played a key role in assisting Alcan to finance its expansionary program so that it could meet their military requirements. The corporate impact of World War II can be easily gleaned from Alcan's financial statistics: the annual sales figure of \$49 million in 1937 peaked to a high of \$290 million in 1943, and dropped slightly to \$259 million in 1944; total assets rose from \$98 million in 1937 to \$528 million in 1943, and dropped slightly to \$523 million in 1944.

In the U.S. and in many countries of western Europe, aluminum is regarded as a strategic material, required for national, civilian and military objectives. For this reason, the governments in these countries have been actively involved in safeguarding the supply of aluminum, and government involvement has ranged from offering incentives to the industry to outright ownership.<sup>9</sup> During the war years, the Canadian government cooperated closely with Alcan, because of the strategic importance of aluminum. This strategic emphasis has now been replaced by the concern with promoting an industrial policy for Canada.

Alcan's third corporate phase of growth commenced around 1948. As a result of the termination of hostilities, the company shifted its marketing emphasis from military to civilian use of aluminum, and aggressively pursued international market opportunities. Success internationally was a pre-requisite for the

profitable operation and expansion of Alcan's production facilities in Canada. In 1946, Canadian production of aluminum ingot was the largest single operation in the Alcan group of companies: 86% had to be exported because of the small size of the Canadian market. At that time, approximately 50% of the export trade was destined for the United Kingdom, 20% to the United States, and the balance to 46 other countries.

The Korean War and the U.S. government involvement precipitated a second round of U.S.-assisted expansion in primary aluminum and fabricating facilities. Alcan benefited from this expansionary support program and invested largely in the expansion of its smelter capacity in Canada. Throughout the three corporate phases, Alcan continued to pursue its corporate strategy of being a primary producer's producer, i.e., its traditional role as a supplier of primary metal to other major primary producers. While the province of Quebec was the major recipient of Alcan's primary aluminum investment program during the first two corporate phases, British Columbia was the site for its most significant Canadian investment program in the third corporate phase, which came to an end in 1957 because of a world surplus of smelter capacity.

To place this corporate phase in a financial framework Alcan's sales, which were \$259 million in 1944, hit a low of \$111 million in 1946 and then steadily increased to \$453 million in 1957, hitting a new high of \$483 million in 1956; total assets, which were \$523 million in 1944, more than tripled to \$1,629 million in 1957.

The growth of the world aluminum industry that started around 1957 was precipitated in part by the expansion program undertaken by Alcan's traditional customers in the U.S. such as Alcoa, and the European aluminum producers. The expansion in



primary aluminum production contributed to nearly a decade of surplus smelter capacity. This situation was particularly damaging to Alcan because its corporate strategy concentrated on the production and sale of primary aluminum, thus leaving it with insufficient captive outlets for its ingot. The combination of corporate and market circumstances prompted Alcan in 1958 to place "greater emphasis on the establishment and enlargement of fabricating plants...and to provide larger outlets for the company's primary aluminum". This new corporate strategy emphasized forward vertical integration into fabrication as a way of lessening Alcan's global market vulnerability. The strategy contained two goals: first, to increase Alcan's manufacture of higher valued fabricated products, and, second, to provide an outlet for its ingot. A major ingredient for the success of this strategy rested on Alcan's investment and penetration of the U.S. market. Alcan's fourth corporate phase of development was now in progress.

Alcan's overall corporate performance was greatly strengthened as a result of the new strategy. In 1970, some 12 years after the implementation of the decision to vertically integrate forward, "for the first time, Alcan's shipments of fabricated products in all forms exceeded shipments of primary ingot". Moreover, between 1960 and 1970, "Alcan has raised its fabricating tonnage from 36% to 51% of overall sales tonnage, and its gross integrated profit on fabricating from 42% to over 60% of gross profit from aluminum operations". Alcan sales, which were \$523 million in 1957, increased to \$1,346 million in 1970, while corporate assets for this period rose from \$1,629 million to \$2,215 million. Concomitantly, Alcan's U.S. subsidiary, Alcan Aluminum Corporation (Alcancorp), which was nothing more than a sales subsidiary in 1944, emerged as the fourth largest aluminum fabricator in the United States, and its sales in 1975 would have easily placed it

on the Fortune list of the 500 largest industrial corporations in the United States.

The importance of Alcan's U.S. subsidiary cannot be underestimated: in 1974, sales to third parties in the United States accounted for about 27% of Alcan's total worldwide sales in tonnage, and for approximately 11% (\$241 million) of Alcan's total capital employed. Similarly, the importance of Alcan's contribution to Alcan Canada, and hence its impact on Canada cannot be overemphasized: "approximately 75% of U.S. ingot imports comes from Alcan and 80% from Canada as a whole". As a result of Alcan's investment into fabrication in the U.S., there is a very high degree of corporate interdependence and integration between Alcan Canada and Alcan Corp. This explains why Alcan actively encourages the creation of a North American free trade arrangement, at least in primary aluminum.

In recent years, the shape of a new, the third, corporate strategy appears to be emerging; a strategy that will not necessarily be linked to the requirements of Alcan Canada, i.e., consumption of largely Canadian produced primary aluminum. In 1971, David M. Culver, currently President of Alcan Canada, projected a scenario in which Canadian smelter production would be geared essentially to North American requirements, especially those of the United States, and would play a marginal role as a supplier to other foreign markets.

Recent economic and political actions taken by governments in certain industrialized and Third World countries have had a profound impact on Alcan's corporate decision-making. Traditionally competitive pressures have led Alcan to erect local smelting operations in order to protect its dominant local position. Currently, in order to enter certain new markets or retain its position in existing markets, Alcan is being pressured into

establishing fully integrated domestic aluminum industries (self-contained ingot and fabricating systems) even in those countries where the importation of Canadian primary aluminum might make the venture more efficient.

These investments are being made because of their strategic and economic importance to the general competitiveness of Alcan as a multinational enterprise, of which Alcan Canada is a part, albeit a critical one. The extent to which Alcan has become multinational in its orientation is illustrated by its willingness to transfer managerial and technical knowhow in aluminum to foreign governments for a fee without insisting on corporate ownership ties. For example, in July of 1976,

Alcan Aluminium Ltd. said its Alcan Project Services Ltd. unit signed a contract to carry out a detailed feasibility study for the Mexican government on a proposed 165,000 ton a year Mexico-Jamaica aluminum smelter at Coatzacoalcos in the state of Veracruz...

The contract was signed with Jalumex S.A. de C.V., a jointly owned concern formed by the Jamaican and Mexican governments to construct the smelter.<sup>10</sup>

#### CORPORATE SOCIAL RESPONSIBILITY

Canadian firms face pressures from various interest groups to alter their traditional commitment to profit maximization. A multinational firm such as Alcan must respond to numerous demands on its capabilities of which the following are but a few: to turn down defence contracts and orders destined for the manufacture of military equipment, as was the case with Viet Nam; to terminate investments in countries such as South Africa where racial or political policies and practices are alien to the value set of Canadian society; to give special financial and other support to



minority groups not only in Canada but through subsidiaries in countries as different in stages of development as the United States and Jamaica; to make available special manpower training and jobs for the unemployed, particularly in regionally designated areas such as in Newfoundland; to voluntarily refrain from increasing prices to cover rising costs; to invest in machinery and equipment designed to minimize environmental pollution; to allow for a more diverse public representation on the company's board of directors; to allow more executives to serve without compensation on federal, provincial and municipal public boards as well as to undertake non-business arrangements; and to contribute more generously to the support of charitable, educational and artistic organizations and activities.

The foregoing pressures emanate from such diverse individual groups as consumers, students, politicians, religious clerics, union leaders, government bureaucrats, and even other businessmen. The composition of an interest group may range from extreme homogeneity to extreme heterogeneity, depending upon the issue at hand, and the intensity with which it is debated. The point to note is that these interest groups through their social challenge to firms such as Alcan are in fact challenging the economic considerations which traditionally form the capitalist basis for determining the allocation and use of private resources; namely, that decisions taken with a view to maximizing profit also maximize public benefits.

Most socially conscious members of Canadian society do not appreciate that their social and economic challenges are not only questioning the traditional elements of private corporate decision-making, but, in addition, are raising critical questions concerning the intellectual ability of corporate executives to interpret and respond to new social goals, and to develop new criteria for

managing corporate resources in accordance with new measures of corporate performance.<sup>11</sup> The concept of social responsibility implies that before making a corporate decision, an executive will consider the widest possible effects of his decision on the public interest. The significance of social responsibility is that it is a cultural value which may affect the corporate executive's decisions, along with technical, economic, and other values that he must consider.

Social responsibility is seldom the exclusive basis for any key corporate decision at Alcan, but it is often a participating influence in decision-making with reference to areas of economic and social activity that are not always mandatory such as corporate initiated environmental pollution controls; employee housing and education assistance; corporate pension and fringe benefit programmes, not bargained for with employee unions; financial assistance in the form of scholarships and fellowships, tenable at Canadian and foreign universities; and availability of and access to the various parts of the corporate infrastructure--for example, the occasional use of the Company's transportation and telecommunication networks by Canadian communities and organizations when in need of help.

Alcan contends that it undertakes these acts of socio-economic significance in its capacity as a responsible corporate citizen in Canada, and, similarly, tries to exercise the same degree of social responsiveness in the other countries in which it operates as a multinational enterprise, within the limits of the laws of those countries. In the final analysis, corporate social sensitivity aims at appeasing, if not anticipating, the demands of Alcan's various publics--employees, management, customers, suppliers, shareholders, communities and governments--in order to ensure the profitability of its operations and the survival of the

capitalist enterprise system which nourishes it. In dealing with social responsibility, Professor Neil W. Chamberlain notes that,

...the individual corporation must recognize two constraints. First, it must show a profit that compares favourably with the profit positions of other major corporations.... Second, a corporation must maintain a size (preferably a rate of growth), that permits it to continue those facilitating activities--advertising, research and development, personnel policies, public relations--on at least the scale that has brought it to its present position....Such a fixation on profit and size does not arise because these are necessarily the most desirable objectives that can be argued, even by a group of corporate executives, but because the company is driven to them by the requirements of its position.<sup>12</sup>

Pressures are not always external to the corporation. Like other large corporations, Alcan lobbies on behalf of its own interests in Canada and in many of the other countries in which it operates. In the aluminum industry, close relations with governments at all levels are of particular importance. In Canada because the aluminum industry is synonymous with Alcan, the company maintains a strong public relations organization that involves itself in the conditioning of government policy makers so that they are favorable to the operations of the company. For example, this is done at the federal level with reference to Canadian commercial policy because Alcan is a major exporter of primary aluminum to the U.S., and importer of bauxite from third world countries such as Jamaica and Guinea; it is done provincially, since Alcan is heavily dependent on its hydro-electric power base in Quebec and British Columbia; and it is done municipally in towns such as Arvida and Kitimat where Alcan is the major employer and where in turn the bulk of its Canadian smelters are located.



In addition to having its own corporate public relations capability, which includes an office in Ottawa, the company appears to have a policy of encouraging its executives to become involved in various organizations and associations whose activities influence public policy at all levels of government in Canada, as well as in regional and international forums of influence. There can be little doubt that there is a significant relationship between various key bases of power in Canada, and one of them happens to be between the economic and government elites. However, it is less certain that this relationship is the symbiotic one that many of the more left of centre writers have tried to popularize.

In the case of Alcan, for example, the president of Alcanproducts, Alcan Canada's fabricating subsidiary, was president of The Canadian Manufacturers' Association in 1975. This association in recent years has been more of an adversary of Canadian government proposals and policies, e.g., on competition and taxation legislation, than a supporter of them. Alcan executives occupy positions of importance in such organizations as the Canadian Export Association, Canadian Chamber of Commerce, and Canadian Executive Service Overseas at the national level, as well as comparable positions in provincial and local organizations. A major goal of these groups is to promote the free enterprise system, a mission which coincides with the interest of Alcan, and one which its management find little difficulty in promoting. Just as social interest groups in Canada try to influence Alcan through pressure tactics to fulfill their expectations and demands, so Alcan in turn, through business interest groups, tries to influence governments and its other publics to fulfill the corporation's expectations and requirements.

A major reason for the current attention given to corporate social responsibility is governments' attempts to use the modern

corporation as an instrument to achieve a wider range of policy objectives. In the past, the concern has centered on the economic performance of firms such as productivity and competitiveness. While concern for economic issues persists, additional concerns in the social-political areas have come to the fore in recent years. For this reason, the traditional approach to the study of the corporation is no longer adequate, and new methods will have to be designed through the development of detailed corporate case studies. It is hoped that this study of Alcan will make some contribution in this field.

HISTORICAL EVOLUTION OF ALCANALCOA--THE PARENT COMPANY

Aluminum is largely a product of the twentieth century, and much of the technical and commercial development has taken place in North America, with Canada a major contributor. Alcan Aluminium Limited, Canada's leading multinational enterprise, ranks among the major aluminum producers in the world. To appreciate the significance of the company's worldwide operations and its economic and social impacts in Canada, it is important to note that the origins of this company were American, and that its links to the Aluminum Company of America, its former parent, were legal as well as familial. This background information is a prerequisite to understanding the economic and managerial evolution of Alcan Aluminium Limited (Alcan), specifically the nature of the corporate strategies and structures it employed as it "progressively" gained independence from the Aluminum Company of America.

In recent years, numerous studies have been conducted on the subject of technological entrepreneurship in the United States. Palo Alto in California and Route 128 in Massachusetts have been the key sites for these studies.

A technologically-based firm is defined as a company which emphasizes research and development, or which places major emphasis on exploiting new technical knowledge. It is often founded by scientists or engineers and usually includes a substantial percentage of<sup>1</sup> professional, technically-trained personnel.

In addition, these firms tend to be established by two or more persons, who often have met and worked together in the same organization, and who are under 35 years old.<sup>2</sup>

Some of the foregoing characteristics were in evidence at the time Alcoa was first established. Alcoa was organized and



incorporated as the Pittsburgh Reduction Company on September 18, 1883.<sup>3</sup> On January 1, 1907, this company became the Aluminum Company of America.<sup>4</sup> The two persons responsible for the formation and initial success of Alcoa were Charles Martin Hall, the inventor, and Captain Alfred E. Hunt, a civil engineer and principal in a metallurgical, chemical and testing firm--Pittsburgh Testing Laboratory. Captain Hunt provided the facilities and helped attract the initial venture capital (\$20,000) in order to commercialize one of Hall's patents. Both men were then under the age of 25. Besides Hall and Hunt, the initial stockholders of the Pittsburgh Reduction Company (all of whom were Hunt's friends) were R.C. Cole (a metallurgist and the man who introduced Hall to Hunt), G.H. Clapp (Hunt's partner in the Pittsburgh Testing Laboratory), W.S. Semple (chief chemist at the Pittsburgh Testing Laboratory), Howard Lash and Millard Hunsiker (head and general sales manager respectively of the Carbon Steel Company) and Robert Scott (mill superintendent with Carnegie Steel Company). These men were all under 35 years of age and were drawn largely from the Pittsburgh Steel Industry.<sup>5</sup>

The central patent with which the Pittsburgh Reduction Company started its operations was the one granted to Charles Martin Hall on April 2, 1889 (No. 400,766). Hall "believed that if a substance could be found which would dissolve aluminium oxide, then an electric current passing through the solution would precipitate the aluminium in metallic form. The essence of (his) discovery was that molten cryolite would dissolve the oxide and that an electric current passing through this molten solution would reduce the oxide to metallic aluminium".<sup>6</sup> In short, he designed the "electrolytic process of reducing alumina to aluminum". The impact of this discovery was immediately felt on the price of aluminum which fell from \$8 to \$2 a pound in 1889, and which in recent

years has ranged from less than 20 cents a pound to a figure of 41 cents in 1975. Charles Martin Hall filed his patent claim on July 9, 1886, but was delayed for two years owing to an interference from Paul Louis Toussaint Héroult of France, who had filed a similar claim in France on April 23, 1886. The question was eventually decided in favor of Hall because his date of success (February 23, 1886) preceded the filing of Héroult's claim.<sup>7</sup>

The previous technology used to produce aluminum, known as the Deville process, was replaced by the new technology. Of the six original international aluminum companies at the turn of the century, four used the Héroult patent (Aluminium Industries A.G. in Germany, Alusuisse in Switzerland, Froges in France, and the British Aluminium Co. in the U.K.) and two used the Hall patent (Alcoa in the U.S. and its subsidiary the Northern Aluminum Co. in Canada, and Pechiney in France). The extensive cartel arrangements that took place in the industry from 1896 until World War II essentially involved agreements between these two sets of firms. If the patents on the technology had been owned by one firm, patent licensing could have been used to control the industry, thus eliminating the need for the cartels at least during the life of the patent.

Among the early pioneers at the Pittsburgh Reduction Company, Arthur Vining Davis stands out as the person most responsible for the emergence and preeminence of Alcoa, a major multinational enterprise. A.V. Davis, on graduation from Amherst College in 1888, immediately began work at the Pittsburgh Testing Laboratory, and shortly thereafter was assigned to work with Hall at the aluminum plant on Smallman Street. The working relationship between Hall and Davis was close and complementary; while Hall the inventor was an introvert, Davis was an extrovert whose sales and administrative skills quickly impressed those around him. As is the case

with many new entrepreneurial ventures, A.V. Davis, a valuable employee, acquired 104 shares of the Pittsburgh Reduction Company on March 11, 1891--28 from George Clapp, 14 from Captain Hunt and 62 from Hall--representing 1.04% of the shares issued and outstanding.<sup>8</sup> This "valuable" employee soon became the guiding force, directing the expansion and professionalization of the operations and activities of the Pittsburgh Reduction Company. In 1942, Judge Caffey in his decision in the U.S. v. Alcoa antitrust case had the following to say about Arthur Vining Davis:

....by 1900, practically, he had become the real leader in Alcoa. From that date to this date, increasingly he has continued to be the leader and I am making no invidious distinction when I say that it is he who, chiefly and primarily,<sup>9</sup> has built up and made Alcoa what it is today.

As in most entrepreneurial start-ups, lack of capital was a perennial problem. Shortly after the incorporation of the Pittsburgh Reduction Company, it became apparent that most of the original stockholders did not have sufficient capital to exercise their stock rights, thus forcing the company to dispose of much of its stock to outside capital. The Mellon family in Pittsburgh became a major source of this much needed venture capital. Andrew W. and Richard B. Mellon had initially lent the company money, and they bought 60 shares from Hall on January 16, 1890. According to Ferdinand Lundberg,

In return for \$250,000 credit with T. Mellon & Sons, the Pittsburgh Reduction Company, owner of the process, gave Mellon control of the company. It was common at that time for banks to demand a 'piece of the action' in any promising enterprise that applied for loans....<sup>10</sup>

The Mellon holdings increased to 1235 shares (out of 10,000) in May 1894; rose again in 1917, when they bought an additional 1438 shares; and, by 1920, their holdings had become about one-third



of the total.<sup>11</sup> The Mellon affiliation with Alcoa and Alcan has been a longstanding one, dating back from the inception of both corporations. Banker R.B. Mellon was President of Alcoa from 1899 to 1910, and the Mellon Bank and Trust Company is associated with Alcoa and Alcan as bankers and transfer agents.

In 1890, aluminum consumption in North America was approximately 58,000 pounds, largely consumed by the steel industry for deoxidizing. By the mid 1890s, the aluminum output at the Pittsburgh Reduction Company had increased tenfold, "and half of the production went into cooking utensils, about a quarter to the steel mills and the balance into such things as bicycle parts, reflectors in locomotive headlights, cameras, flashlight powders, semaphores, lithographic plates and bathtubs".<sup>12</sup> Sales resistance to buying aluminum, a new product, was great. Firms and people do not adapt easily to innovations, because they necessitate departure from traditional ways of doing and thinking. The challenge facing Davis was to convince industrial firms to substitute aluminum for the other, more traditional, metals. Although aluminum in many instances was cheaper, lighter and better, these product advantages were lost on most fabricators who were unwilling to experiment with the new and untried. Resistance to product innovation in the market place was then, as it is now, not unusual.

The use of aluminum was viewed by many as a threat to the then profitable markets and products; however, by investigating the end uses of competing metals in the plants of prospective fabricating customers, A.V. Davis was able to identify and document the market prospects for aluminum. In short, Davis proceeded to manage change by forecasting market developments for competing metals, and translating them into opportunities for aluminum. The combination of market resistance to aluminum and certain fortuitous events involving some fabricators (e.g., bankruptcy) led Davis to

enter into fabrication, a stage of forward integration, involving the manufacture of castings, bars, plates, sheets, tubes, and wire. This strategy had the effect of demonstrating to prospective customers some of the profitable end uses of aluminum. The more interesting point to note is that corporate vertical integration also helps to limit the impacts of some of the dynamics of the market place such as price and consumer demand. These early steps into fabrication had the effect of expanding the market opportunities for aluminum, and demonstrated how corporate-owned fabricating facilities might help to reduce the independence of actions taken by arms-length fabricating customers.

The production of aluminum consumes large amounts of electricity. The Pittsburgh Reduction Company used a 125-hp steam engine to generate electricity in its first works at Smallman Street in Pittsburgh.<sup>13</sup> In March 1891, operations were moved to a site on the Allegheny River, at New Kensington, Pennsylvania, where both coal and natural gas were used as fuel. In 1895, the Pittsburgh Reduction Company made a decision to move its smelter operations again, this time to Niagara Falls, New York, where "the ancient mechanics of water power were about to be shifted to electricity with aluminum the catalyst".<sup>14</sup> At the time of the move, the New Kensington smelter was operating at full capacity --2,000 pounds a day.<sup>15</sup>

The aluminum smelter in Niagara Falls was named Niagara Reduction Plant No. 1. The plant commenced operations on August 6, 1895 with 26 furnaces, producing 4,000 lbs. of ingot per day, using power bought from the Niagara Falls Power Company. Production of ingot in 1896 was 801,041 pounds and increased to 2,371,345 pounds in 1897. During these and subsequent years, significant expansion took place and the company contracted to purchase power for Plants No. 2 and No. 3 from the Niagara Falls

Hydraulic Power and Manufacturing Company. The initial power contract with this firm in 1895 was for direct current, but in 1896 the company contracted for the supply of mechanical power, not electricity, to its generators which were attached to turbine shafts owned by the Hydraulic Company.<sup>16</sup>

This shift in purchase from electricity to mechanical power signalled the formulation of the company's later policy of acquiring its own hydroelectric complexes. At the same time, it became apparent to management that it was considerably easier and cheaper to move raw materials to the source of power rather than to transmit power to where the raw materials were deposited. The high cost of transmission of electric power also meant that reduction plants had to be sited well away from other large power users (such as cities), even where good hydroelectric sites were available. Niagara Falls hydropower potential attracted many firms, becoming almost overnight the electrochemical center of the world, in addition to servicing the needs of a growing metropolitan centre--Buffalo. The competition for power generated by the demands of "other" consumers drove up the kilowatt price prompting the Pittsburgh Reduction Company to seek more favorably endowed areas for the development of power which ideally would remain relatively free from the demands of competing customers.

#### INVESTMENT IN CANADIAN POWER

"It is the intention of the company to start manufacturing in Canada very soon".<sup>17</sup> This statement was contained in a letter written by Charles Hall, dated May 3, 1899, to the Shawinigan Water and Power Company in Montreal. On August 14, 1899 the intention was entered into a formal contract.<sup>18</sup> At the time, the site for investment, Shawinigan, was devoid of inhabitants and industrial activity. Two years later, on October 18, 1901, the



Pittsburgh Reduction Company installed four Westinghouse DC generators in its powerhouse to generate 5000 electrical horsepower,<sup>19</sup> a figure which has increased dramatically over the years to an installed capacity for Alcan in Canada of 4.8 million horsepower in 1975. The entrepreneurial drive and venture capital which enabled the Shawinigan Water and Power Company to establish and expand its investments and activities in the Shawinigan region were largely American--the two key figures were Jolin Joyce of Boston, a brewer and a businessman, and John Edward Aldred, a businessman protégé of Joyce, also of Boston. And it was an American aluminum company, through its contract to purchase power which enabled Joyce and Aldred to lend credibility to their successful attempt to raise venture capital.

The construction of the aluminum smelter and powerhouse commenced on May 23, 1900. A Montreal firm of lawyers--Foster, Martin and Archibald--was directed by Charles Hall to set up a Dominion company with the title "Royal Aluminum Company, Limited". This petition for incorporation did not find its way to Ottawa until January 8, 1902 and then was summarily turned down. Corporate folklore has it that "the Secretary of State...told the lawyers that it would be an indignity to connect the word 'Royal' with a promotion in the bush".<sup>20</sup> The proposed name of the Canadian subsidiary was therefore changed to "Northern Aluminum Company, Limited", and the charter was granted on July 3, 1902. Some 23 years later (July 8, 1925), the corporate name was changed to the Aluminum Company of Canada, Limited (Alcan Canada), which in 1928 became the principal operating subsidiary.<sup>21</sup> The original executive officers were Richard B. Mellon, president; Charles Martin Hall, vice-president; and Arthur Vining Davis, secretary. The company's first head office "mailing address" was Shawinigan. In 1914, its head office mailing address was changed to the law office

of McCarthy and McCarthy in Toronto; however, the company did not employ any headquarters personnel.

The aluminum smelter commenced operations on October 18, 1901 and in less than two weeks it was producing 2,000 pounds of metal a day, "compared with less than 60 lbs. a day in the original plant on Smallman Street in Pittsburgh in 1889...."<sup>22</sup> At first, the alumina used at the smelter was brought in largely from England and Germany; however, in 1903 the Pittsburgh Reduction Company established an ore plant in East St. Louis, Missouri, and proceeded to supply alumina for some years from this plant to their Shawinigan smelter. Thus, Mr. Davis and his colleagues had taken another decision to integrate vertically, this time backward. By taking control over a source of supply, previous transactions that were subject directly to market forces were now handled as internal transfers. Conditions of market uncertainty were not eliminated; however, they were significantly reduced to the "more manageable uncertainties as to the costs of labor, drilling, ore transport and yet more remote raw materials".<sup>23</sup>

Canada's position as the world's principal exporter of aluminum began at an impressive level. On December 2, 1901, the substantial amount of 67,200 pounds of aluminum ingot left the Shawinigan platform crated for delivery to Yokohama, Japan....The big shipments headed overseas where Shawinigan aluminum became a familiar sight on the docks of the world, especially Liverpool, Rotterdam, Trieste and Hamburg."<sup>24</sup>

Water was then as it is today critical to the success of Alcan's operations. Water helps produce power, and is the most economical means for transporting ores to Canadian smelters, and Canadian aluminum to the markets of the world.

## THE NORTHERN ALUMINUM COMPANY, LIMITED

The "power growth" in the Shawinigan region was relatively modest compared to the industrial growth that took place in Niagara Falls, New York. Differences in climate, resources--especially the absence of fuel energy such as coal--and lack of population were some of the reasons which accounted for this fact. In 1902, the Northern Aluminum Company organized a wire and cable manufacturing plant adjacent to its smelter. Proximity to customer, not the smelter, influenced this manufacturing decision. The Shawinigan Water and Power Company was going to transmit power into Montreal, some 86 miles away, and the decision was taken to use aluminum rather than copper as the conductor. Thus, the Northern Aluminum Company became both a customer of, and supplier to, the Shawinigan Company.

The year 1906 saw the doubling of Northern Aluminum's plant in Shawinigan making it "one of the world's largest centers in the production of aluminum".<sup>25</sup> In addition, a new wire and cable mill was started, and the first Canadian fabricating plant engaged in sheet rolling and casting was organized in July 1913 in Toronto (Toronto Works, now known as Aluminum Goods). Sand foundry facilities for the production of an extensive range of permanent mould and die castings were established in Toronto in 1914.<sup>26</sup> The commercial impact of this investment program was accelerated as a result of World War I, during which much of the output from the Shawinigan smelter was exported to Europe, because European production was insufficient to meet local demands. Coincidentally, in 1906, European aluminum producers in England, France and Switzerland had their own expansion programs underway and thus narrowed the European aluminum production-consumption gap. This expansion had an immediate impact on Northern's production-sales relationship, particularly for the 1907-1908 period. In the words

of Paul Clark, a company historian,

This experience disclosed the cross all Canadian exporters must bear--a lesson that may not even today be grasped by those not close to international trade. Canada has many aspects conducive to the growing of wheat, the manufacture of newsprint, the goods of electro-process industries and the mining of minerals, but the irremedial handicap has been the Canadian inability to consume her abundance.<sup>27</sup>

Import competition from European aluminum producers in the U.S., and from Alcoa and its Canadian subsidiary, in Europe, together with alternating periods of boom and recession, propelled the major aluminum companies into cartel agreements, aimed at protecting their own markets and sharing third country markets in an orderly fashion. Seven cartel agreements of this nature were made between 1896 and 1926. Except for the first agreement of 1896, Alcoa did not belong to the agreements directly, but indirectly through the cartel membership of its Canadian subsidiary, the Northern Aluminum Company. This was due to Alcoa's fear of prosecution under the Sherman Act. In fact, it might be argued that there are two reasons for the existence of a Canadian aluminum industry, both of which are attributable to Alcoa. The first was Alcoa's need for cheap hydroelectric power, and the second was its need for a convenient vehicle for belonging to international cartel agreements.

The final major pre-World War II cartel agreement took place as a result of the Foundation Agreement signed by Aluminium Limited and the European producers, which led to the incorporation of the Alliance Aluminium Compagnie in Switzerland. A retired senior Alcan corporate executive noted that:



In the world depression from 1930 to 1935, the going was extremely rough and I think it only fair to say that the steady unruffled hand and mind of Edward Davis was largely responsible for bringing the company through without bankruptcy. A phase of the depression was the formation of a Swiss-based cartel, Alliance Aluminium Company. In April 1931, representatives of the European producers met Edward Davis in Montreal, and at subsequent meetings in London and Paris, an accord was reached between the French, German, Swiss, British and Canadian companies to form the cartel to regulate metal inventories and production and to work mutually to improve the market. This was a tremendous help in avoiding a catastrophe during these difficult years.<sup>28</sup>

The proportion of shares in the Alliance held by each member determined its quota of total production in certain markets. The distribution of shares was as follows: Aluminium Limited 28.58%, French 21.35%, German 19.65%, Swiss 15.42% and British 15.00%. Although Alcoa was not a direct partner in the Alliance, it has been suggested that it was a sleeping partner because the success of the Alliance depended on the European producers respecting Alcoa's U.S. market, and Alcoa respecting the European's interests. In May 1945, Alcan decided to withdraw from the Alliance and "denounced the agreement between itself and the European shareholders in the Alliance". It noted that the Alliance had been inoperative since 1938, and that the depressed market for aluminum had been stimulated by wartime production.<sup>29</sup>

#### INVESTMENT IN QUEBEC

The industrialization of the St. Maurice Valley (Shawinigan) led to increasing demands on its power at a time when the markets for Canadian aluminum were expanding. This prompted Alcoa to

locate and invest in additional producing capacity in Northern Quebec's remote Saguenay Valley.

Fed by a watershed of 30,000 square miles, the Saguenay River falls 300 feet in a space of 30 miles, providing not only good hydroelectric potential but also ready access to the sea--a major advantage to an industry which imports its major raw materials and exports the larger part of its production.<sup>30</sup>

From 1922 to 1925, the Duke Price Power Company (later renamed Saguenay Power Co.) started to develop the hydroelectric power of the Saguenay and Lac Saint Jean region, and built the first power station at Isle Maligne (name changed to Alma). This company entered into a contract with Alcan Canada for the sale of power to be used in the first smelter at Arvida. The ability to harness the hydroelectric power of the region was made possible when Alcoa acquired control of the Saguenay Power Company. The acquisition enabled Alcoa to plan its future investment programs with greater certainty by ensuring corporate control over the power basin of the Saguenay.

Other forms of vertical integration took place in 1925-26 in the area of transportation, through the acquisition of port facilities and two railways. Port facilities were acquired at Port Alfred, twenty miles from Arvida. These facilities allowed the company to berth ocean-going cargo ships carrying raw materials, such as bauxite from British Guiana for the Arvida smelter, and to load the outgoing metal shipments. The major railway acquired in 1925 was The Roberval and Saguenay Railroad whose assets included a trackage of 37 miles, a mainline, sidings, cars and stations. This acquisition linked Port Alfred with the smelter at Arvida. In 1926, the Company acquired a second railroad, the Alma and Jonquières which links the powerhouse at Isle Maligne with the Canadian National Railway some ten miles to the south.<sup>31</sup>

The smelter at Arvida, which derives its name from Arthur Vining Davis, was built in 1925. According to 1975 company documents:

As a result of almost continuous expansion and development, Alcan today operates in Quebec's Saguenay and Lac-Saint-Jean districts the non-communist world's largest smelter at Arvida plus a second smelter at Alma, and six hydro-electric power stations. The production of aluminum requires huge electric power consumption. Alcan operates six generating stations in the area: Shipshaw, Chute-à-Caron, Isle-Maligne, Chute-à-la Savane, Chute-du-Diable et Chute-des-Passes, with a total installed capacity of 2,700,000 kilowatts.

In a world market situation in which energy costs are continuously rising, Alcan's control over the world's largest privately owned hydroelectric power facilities gives it a significant advantage over its competitors, although the bulk of its aluminum output has to be exported because of the small size of the Canadian market.

#### CORPORATE REORGANIZATION AND ALUMINIUM LIMITED

The 1925-28 period was an active planning time for Alcoa in Canada as power plants and reduction capacity were being considered for future construction. The Canadian operations showed promise of considerable growth as did the other foreign holdings of Alcoa scattered over several continents--smelter interests in Italy and Norway; fabricating plants in England and Germany; and bauxite mines in British Guiana and Yugoslavia.<sup>32</sup> Company history has it that Arthur Vining Davis began to realize the need for a specialized management to coordinate its international activities. Rather than setting up an international division at headquarters,

It was believed that an integrated development could be more successfully achieved by an independent corporation at the centre of operations than by a foreign department or subsidiary of an American company....<sup>33</sup>

On May 31, 1928, Aluminium Limited was incorporated in Canada "...to engage in the international aluminum business".<sup>34</sup> This company, commonly called "Limited" and later on "Alcan", was assigned all of Alcoa's foreign holdings, including Alcan Canada but excluding its bauxite holdings in Surinam. The transfer of the bauxite holdings in British Guiana was necessitated by the mining leases that stipulated that the bauxite had to be processed on British soil.

This first split between Alcoa and Limited was not the result of any antitrust action, at least directly. Rather, it was attributed to the existence at that time in Alcoa of two contenders for one throne, Roy A. Hunt, son of Captain Alfred E. Hunt, and Edward K. Davis, A.V. Davis' younger brother by some 13 years. Roy Hunt was named president of Alcoa in June 1928, when Arthur became chairman of the board, and Limited provided Edward with an alternate throne. Several features of Limited's initial ownership and control are of interest. In the case of the latter:

When Aluminium Limited was founded in 1928, all of the common shares of the new company were turned over to Alcoa in return for the shares in the foreign subsidiaries which Alcoa had transferred to the new Company. Immediately thereafter, Alcoa distributed the Aluminium Limited common stock to its own shareholders on the basis of one share in Aluminium Limited for each three shares they held in Alcoa. It will be seen, therefore, that in June, 1928, the shareholders in Alcoa and Aluminium Limited were the same individuals. They numbered less than 1,000.<sup>35</sup>

Between 1928 and 1950, 11 shareholders held a major part of the



stock in each of the two companies--Alcoa and Limited.<sup>36</sup>

On the question of control, the first president of Limited and the principal architect of its growth was Edward Davis, who had acquired considerable experience working as an executive for his brother at Alcoa. In the words of Alcan's corporate archivist:

Working with a small nucleus of Alcoa-trained men who volunteered to leave their old company to join the Canadian organization, Edward Davis set the course for the new enterprise. Included among the career men who came to Aluminium Limited were Jarvis H. Alger, Earl Blough, James A. Dullea, Frank L. Farrell, Elmer G. MacDowell, Edwin J. Mejia, George O. Morgan Jr., Oswald M. Montgomery, Ray E. Powell, Harold H. Richardson and Phillip D. Weaver...These, mostly tall, husky fellows, each with markedly individualistic traits, welded into a remarkably effective sodality, with Edward Davis firmly gripping the reins and sometimes flicking the whip.<sup>37</sup>

The ownership ties between Alcoa and Limited, the familial relationship between the Davises and the Alcoa-trained contingent might suggest that close managerial cooperation, if not control, would exist between the two companies. Yet, official company history contends:

....but the management of Aluminium Limited was none the less independent of Alcoa. There were no directors in common between the two companies.<sup>38</sup>

This contention will be examined further below.

The reign of Edward K. Davis and his small band of U.S. corporate warriors was a long one, and it was only during the past decade that these pioneers have been replaced by a new group of managers in the Alcan corporate system. Edward was president and chief executive officer of Alcan Aluminium Limited (Alcan), the successor to Limited, from 1928 to 1947. That year he was replaced by his son Nathanael, age 33, as president and director of the

company. In 1976, N.V. Davis is still chief executive officer. Ray E. Powell, who retired as Director of Alcan in 1967, was at one time president of Alcan Canada. His son-in-law, David Michael Culver, was appointed president and chief executive officer of Alcan Canada in 1975, and is a director. Dr. Earl Blough, who worked with Charles Martin Hall at Alcoa, retired as a director of Alcan in 1954. He was instrumental in building up Alcan's research and development capability. George O. Morgan also retired as a director in 1954. He was formerly the chief financial officer of Limited. In 1958, three other pioneers retired: McNeeley DuBose and A.W. Whitaker, the people responsible for building Alcan's hydro-power and smelter complex in Canada, and Elmer G. MacDowell, Alcan's chief sales management officer. James A. Dullea and Edwin J. Mejia retired as senior vice presidents and directors in 1962. In 1965, Harold H. Richardson, who accompanied and then replaced Dr. Blough, retired as director and vice president of Alcan.

Reorganizing the company's operations was the major task facing Limited's management in 1928. Limited's first headquarters site was situated at 22 Canada Life Building, Toronto. In 1929, a Canadian regional office was opened at 1000 Dominion Square building in Montreal, and became Limited's head office in 1939. The first major international office was established in 1931 at 59 rue de Stand in Geneva, Switzerland. Although Limited's head office was in Canada, the first outside auditors appointed in 1932 were U.S. (Pittsburgh) based:

In conformity with the increasing tendency to employ independent accountants for annual audits, your directors have appointed Collins & Company, of Pittsburgh, Pennsylvania, U.S.A., to audit the company's accounts and to report thereon.<sup>39</sup>

The U.S. auditors were replaced by a Canadian-based firm of accountants, Price, Waterhouse & Co., in 1935. During these early years of Limited's operations, certain members of the company's board held dual positions; with Limited, and with other firms. For example, J.F. Van Lane, assistant secretary and treasurer of Limited, was also president of Canada Life Assurance Company, which was located in the same building as Limited. Leighton McCarthy, K.C., who was vice president of Limited was also associated with McCarthy and McCarthy, a law firm. Positions of dual managerial responsibility, however, were limited to areas of staff (advisory) assignment.

The Depression of the early 1930s had an immediate impact on Limited's operations and investment program. The impact was so severe that by 1933 production actually stopped in Shawinigan, and full smelter operations were not resumed until 1937. Investment programs were shelved for later implementation. Annual sales fell dramatically. For example, the company's 1929 sales volume of \$30 million dropped to \$13 and \$14 million respectively for the years 1932 and 1933 (see Table 2), and increased only gradually between 1934-36. Limited's world wide operations were described by E.K. Davis in 1934 as follows:

Aluminium Limited and the companies in which it owns all or a large part of the capital are engaged directly or indirectly in the aluminum business or in the production of requisite supplies. They are situated in sixteen countries and are, accordingly, subject to varying economic conditions,--the result of an almost universal desire for national economic independence which has given rise to a highly complicated system of tariffs, embargoes and other obstructions to the normal course of international trade....Our investments at home (the Canadian group) consist principally of the Aluminum Company of Canada, Ltd. and the Duke-Price Power Company, Ltd. The former is engaged mainly in the

TABLE 2  
ALUMINIUM LIMITED AND  
CONSOLIDATED SUBSIDIARIES  
Comparative Financial Statistics  
(as adjusted)

Year	Total		Net Income before De-			No. of Common <sup>2</sup> Shares	Per Common Share		
	Assets	Sales	preciation	Current	"Cash		Capital		Cash
	before reserves	Operating Revenues	and Income Taxes	Income Taxes	Income" <sup>1</sup> Income		Stock & Surplus	Net Income	Divi- dends
	-----	Millions of	Canadian	Dollars	-----	Millions	--Canadian	Dollars--	
1928	\$ 71	\$ 12	\$ 1	\$ 0	\$ 1	18.9	\$ 1	\$ .02	\$ 0
1929	75	30	4	0	4	18.9	1	.13	0
1930	75	26	3	1	2	18.9	1	.03	0
1931	81	22	1	1	0	19.5	1	-.08	0
1932	81	13	1	0	1	19.6	1	-.08	0
1933	84	14	2	0	2	19.6	1	-.05	0
1934	83	21	2	0	2	19.6	1	-.02	0
1935	84	26	2	0	2	19.6	1	.01	0
1936	88	32	4	0	4	20.7	1	.09	0
1937	98	49	13	2	11	22.3	2	.36	0
1938	144	66	20	5	15	22.3	2	.49	0
1939	158	92	28	8	20	22.3	3	.69	.14
1940	209	82	38	22	16	22.3	3	.49	.27
1941	324	132	53	15	38	22.3	3	.65	.33
1942	446	198	75	12	63	22.3	4	.69	.33
1943	528	290	96	14	82	22.3	4	.52	.33
1944	523	259	81	11	70	22.3	4	.49	.27
1945	480	114	26	8	18	22.3	4	.52	.27
1946	490	111	28	10	18	22.3	5	.54	.30
1947	514	153	38	15	23	22.3	5	.72	.33
1948	587	209	56	20	36	22.3	6	1.22	.44
1949	612	199	57	20	37	22.3	6	1.21	.43
1950	698	227	73	26	47	22.3	7	1.56	.59
1951	809	284	92	36	56	24.6	9	1.51	.62
1952	972	333	95	35	60	24.6	9	1.44	.65
1953	1,124	336	96	26	70	27.0	10	1.41	.66
1954	1,180	328	94	21	73	27.1	11	1.29	.65
1955	1,310	412	123	26	97	29.9	12	1.61	.71
1956	1,468	483	137	31	107 <sup>3</sup>	30.0	13	1.85	.77
1957	1,629	453	112	8 <sup>3</sup>	104 <sup>3</sup>	30.2	14	1.37	.84
1958	1,734	423	80	9	71	30.3	14	.74	.73

<sup>1</sup>1950 and thereafter is before reserve for future income taxes

<sup>2</sup>Outstanding at end of each year, adjusted for stock dividend in 1939 and stock splits in 1948, 1952 and 1957.

<sup>3</sup>Reflects \$11 million income taxes recovered in 1958.

Source: Aluminium Limited, Thirty-First Annual Report for the year 1958, p. 23.



electrolytic reduction of alumina to aluminum and in the fabrication of the latter product. The Duke-Price Power Company, Ltd. generates and transmits electrical energy. It furnishes all the power required by the Aluminum Company of Canada, Ltd. for its smelting operations.

Farther afield but still in the British Empire, are seven companies of which the principal ones are the Demerara Bauxite Company, Ltd. in British Guiana, South America, owning and operating bauxite mines: the Northern Aluminium Company, Ltd. in England, engaged in rolling sheet and in the production of other semi-fabricated or finished aluminium products: Jeewanlal (1929) Limited, an Indian company with headquarters at Calcutta and factories in Calcutta, Bombay, Madras and Rangoon. The latter company manufactures utensils and is otherwise engaged in light manufacturing.

The investments so far mentioned and others of less importance in the British Empire account for approximately \$35,150,000.00 of the total of \$58,057,741.09 referred to above.

In Italy, we have a group of three companies, fully owned or nearly so, engaged in mining bauxite, in converting aluminous materials into refined alumina, in smelting alumina into aluminium, and in generating electrical energy.

Aluminium Limited has no fully owned operating company in Norway, but has substantial interests in two smelting companies.

Also, we have companies, engaged in one or more branches of the aluminium business other than smelting, in seven other European countries and in the Far East.<sup>40</sup>

Approximately 70% of Limited's investments were located within the British Empire. Canada's trade agreements with the United Kingdom, Australia and New Zealand, and with the United Kingdom and India gave Limited's products, made within the British Empire, either free entry into the market of the foregoing countries

or preferential rates of duty over similar products of non-Empire countries. These trade agreements were made pursuant to the program of the Ottawa conference of July and August, 1932.

### WORLD WAR II AND ITS IMPACT ON THE CORPORATION

Rising commercial, industrial, and military demand for aluminum in 1937 convinced Limited to invest in "a major smelter expansion programme to double the (company's) ingot capacity".<sup>41</sup>

When World War II broke out, Aluminium Limited's Canadian ingot capacity was approximately 100,000 tons, representing three-quarters of the production available in the British Commonwealth of Nations. More important, however, the Company had the resources of raw materials, a large partially developed power site, and experience, together with long range plans, on which rapid expansion could be based.

Under the pressure of war demands from the United Kingdom, Canada, Australia and, later, the United States, the company increased its ingot-producing capacity five-fold from 1940 to 1943 by new construction at Arvida and Isle Maligne in the Saguenay Valley, and elsewhere in the Province of Quebec at Shawinigan, La Tuque and Beauharnois....

As the waterpower of the Saguenay was harnessed to make this one of the most important hydroelectric areas, the aluminum plant at Arvida became by 1943 the largest single producing unit in the world. The plant itself occupies an area 3/4 mile wide by 1 3/4 miles long, consisting of 22 pot lines, alumina and electrode plants, offices, laboratories, repair shops, machine shops, warehouses, and other buildings. Farther upstream at Isle Maligne is a smaller aluminum producing plant. Small only in relation to Arvida, the 115,000 ton annual capacity of this modern unit, built in 1943 and 1950-52, ranks it among major aluminum producing plants.

...Elsewhere in Quebec, at Beauharnois, near the western border of the province of the St. Lawrence, another aluminum smelter was established in 1942.<sup>42</sup>

To a significant extent, Limited's expansion program was financially assisted by the governments of the United Kingdom, United States, Australia and Canada. For example:

....the British Ministry of Supply turned to Alcan Canada and offered to lend us \$55,600,000 for 20 years on two conditions:

We were

- 1) to increase our capacity from 90,000 tons to not less than 197,500 tons per year, and
- 2) to give the British Government for 20 years a first call on the output of the 107,500 tons of increased capacity.

...in the spring of 1941, negotiations took place between the U.S. government and Alcan....with the U.S. government lending us \$50 million as partial prepayment to help us finance the required plant.

...In the summer of 1941, the Australian government also negotiated its aluminum requirements with us, with an advance payment of \$2.5 million. And of course on top of all these off-shore large orders, we had to supply Canadian government <sup>43</sup> purchases by Canadian airplane manufacturers.

The Canadian government's financial assistance came largely in the form of deferred taxes totalling about \$177 million, through special depreciation allowed to new construction deemed necessary by the Government for the successful prosecution of the war.

The company's growth between 1937 and 1944 was dramatic: assets increased five-fold; sales increased five-fold; net income increased six-fold; current income tax contribution increased five-fold and cash income increased six-fold. In dollar terms, Limited grossed \$49 million sales on assets worth \$98 million in 1937, by 1944 these categories were respectively \$259 million and \$523 million (see Table 2). At the end of World War II, Limited found itself in possession of impressive productive capacity, and was faced with an even more impressive challenge of having to develop civilian uses of aluminum in order to offset the sudden

loss of aluminum sales in the military market. For example, the company's sales of \$259 million in 1944, fell to \$111 million in 1946; in other words, a 57% drop in sales in two years. To meet this challenge, President Davis introduced in 1946 the "third of the principal phases of its history to date", just a year prior to his retirement.<sup>44</sup>

From the standpoint of the company, the first principal phase involved the decade following the formation of the company in 1928. As previously noted, management's concern during this period was with organizing, integrating and extending the company's assets and sales in Canada and abroad, particularly in British Guiana, England and Norway. During this period, corporate investment intentions in Canada took time to materialize because of the impact of the economic depression. The second principal phase of Limited's history commenced in 1938, and could be viewed as a "War" phase, since "the requirements of global warfare had called forth a vast expansion of plants for producing and fabricating aluminum, not only in the far-flung companies in which Aluminium Limited had an investment but in competitors' plants as well".<sup>45</sup> Thus, the third principal phase of Limited's history "undertook the task of fostering again, and indeed extending greatly, the international flow of aluminium for civilian use".<sup>46</sup>

The market shift from military to civilian use of aluminum was made easier because of industries' use of aluminum during World War II. Business now had a much greater appreciation of the uses of aluminum, in addition to its ease of handling. Furthermore, aluminum was cheaper than other competing metals. Improved production techniques, and the acquired economies resulting from large scale production during the war also contributed to the lowering of the price of aluminum.

The third principal corporate phase was introduced at a time



when the scope of Limited's operations was already quite impressive:

In 1946 the operational activity in the Aluminium Limited Group embraced the following integrated operations essential to the conduct of the business; the discovery and mining of the essential ore, bauxite; the transport by sea and rail, and trans-shipment, of bauxite and other raw materials; the development of hydro-electric power; the production of virgin aluminium ingot, the conversion of a portion of the ingot metal into semi-finished forms for re-sale to industrial customers; the manufacture of some finished goods; the wide spread sales effort to find markets for ingot and semi-finished metal; the conduct of a research and development programme essential to a growing industry; the overall managerial supervision required by operations on an international basis.<sup>47</sup>

In order to add some flesh to the foregoing corporate description, it should be noted that British Guiana was the major source and supplier of bauxite for Limited's operations, and Canadian production of aluminum ingot was the largest single operation in the Aluminium Limited Group--86 per cent of which had to be exported because of the small size of the Canadian market. Approximately half of the exports were shipped to the United Kingdom, one-fifth to the United States and the remaining balance to 46 other countries. A portion of the Canadian aluminum output was exported to Limited-owned and -associated (partially owned) fabricating companies in the United Kingdom, Switzerland, Australia, India, Denmark, Holland, China and the Aden Protectorate. It is interesting to note that a wholly owned fabricating plant was under construction in 1946 in the Union of South Africa. The question of corporate social responsibility and Limited's investment in South Africa has become in recent years the focal point of interest of some active pressure groups in Canada.

The contribution of Aluminium Limited's operations to Canada in terms of Canadian payrolls, Canadian income taxes, Canadian sales to Canadian customers, and Canadian aluminum domestic and export shipments for the years 1928 (the first principal corporate phase year), 1938 (the second principal corporate phase year) and 1948 (the commencement period of the third phase) can be gleaned from Exhibit 2. In two decades, Canadian payrolls increased 1400% (\$2.5 million to \$35 million) and Canadian income taxes increased 8647% (\$.17 million to \$14.7 million).

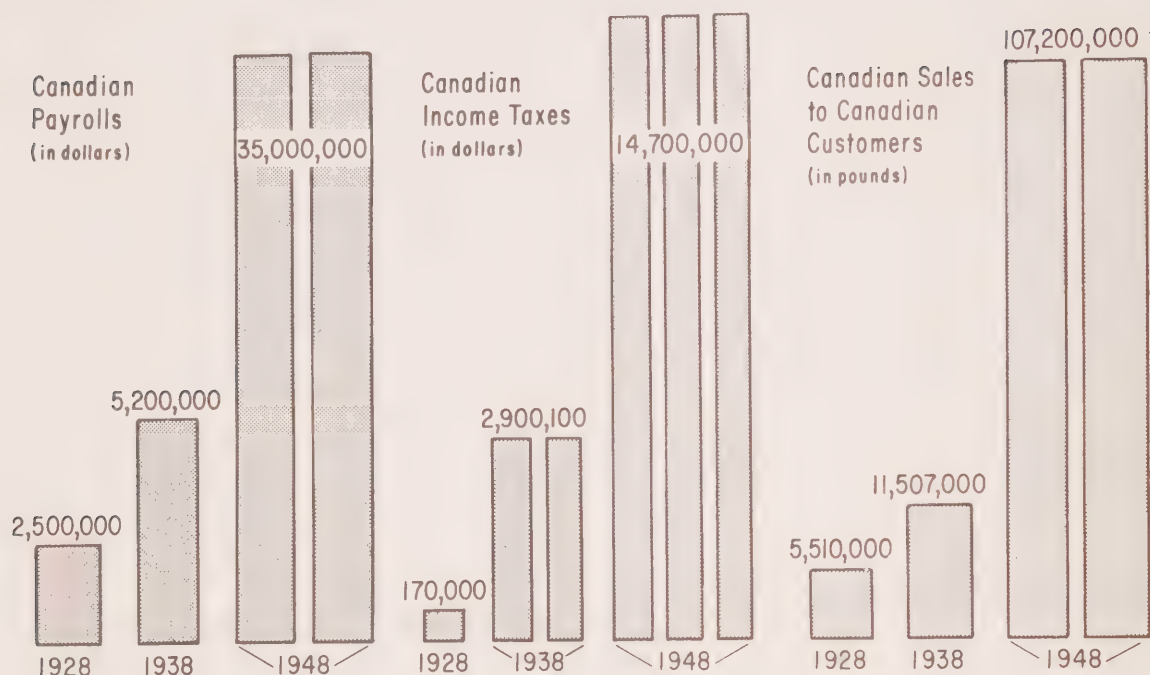
Before proceeding to highlight the growth and development of Limited (Alcan) during this corporate phase, two important points should be noted: first, the emergence of a number of new aluminum firms in the United States, and second, the expansionary impact of the North American aluminum industry arising from the Korean hostilities. Prior to World War II, Alcoa and Alcan were the major aluminum producers in North America. In order to meet the demands of the War, the U.S. "government helped finance aluminum plants involving an outlay of \$790 million and by so doing, increased productive capacity six-fold".<sup>48</sup> By the end of the war, U.S. government-owned reduction capacity was disposed of to the private sector, specifically to Reynolds Metal and to Kaiser Aluminum and Chemical Ltd., making them the third and fourth major primary aluminum producers in North America. The U.S. government believed that Alcoa enjoyed the status of a monopolist in the U.S. aluminum field, and thus attempted to promote competition by forcing Alcoa to release patents, by favoring Reynolds and Kaiser with the development of new facilities, and by making government-owned surplus aluminum available at attractive prices.

The outbreak of hostilities in Korea coupled with U.S. government involvement ushered in a second round of U.S. government-supported expansion in primary aluminum and fabricating

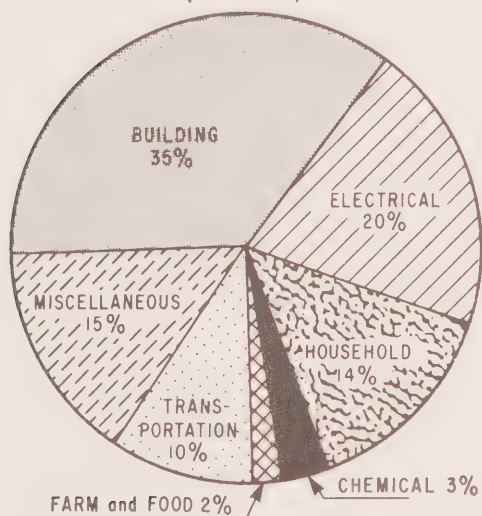
## Exhibit 2

### ALUMINIUM LIMITED (Incorporated 1928) and Consolidated Subsidiaries

Subsidiaries in Canada, Canadian Highlights in two Decades



1948 Distribution of Aluminium by Uses  
(CANADA)



Source: Aluminium Limited, Review of the year 1948, p.12

facilities. As in the case of World War II, Alcan benefited from this expansionary support program. In order to meet U.S. government requirements of aluminum, firms such as Alcoa and Kaiser contracted to take 786,000 tons of metal from Alcan over a period of years. The Kaiser contract ended in 1958, and Alcoa secured a cancellation of its purchase commitment early in 1960. Similar types of long term sales contracts were made by Alcan with other U.S. primary producers and independent fabricators,<sup>49</sup> but Alcan had no direct stockpile contracts with the U.S. government.

The pent-up civilian demand for goods following World War II and the Korean hostilities of the early 1950s marked the fourth major period of growth for the North American aluminum industry. The preceding three growth periods were World War I, the 1920s and World War II. As was the case during the foregoing three periods of expansion, Alcan invested largely in the expansion of its smelter capacity. Compared to the three major U.S. producers of aluminum - Alcoa, Reynolds and Kaiser - who invested heavily in both upstream (smelter) and downstream (fabrication), Alcan continued to pursue its marketing strategy of being a primary producer's producer, i.e., a supplier of primary metal to other major primary producers.<sup>50</sup>

In order to insure its traditional role as a supplier of primary aluminum, Alcan invested heavily in the expansion of its mining, smelting and power operations in Canada and abroad. In the words of President Nathanael V. Davis in 1960:

The 1950's saw the construction of Kitimat and of three additional hydro-electric plants within the Saguenay system. As a result our Canadian generating capacity has grown from 2,000,000 h.p. to 4,650,000 h.p. during the past decade. We have now not only substantially increased our Canadian aluminum capacity to 750,000 tons (excluding the Beauharnois smelter which now is leased to others),



but we have created the power and raw material base to enable us to build up production to 1,000,000 tons a year as soon as the demand justifies it, at relatively low cost per ton of increased output. Over one billion dollars has been invested in the Fifties in these new aluminum and related power facilities, bauxite and alumina installations and fabricating plants. To accomplish this, and other parts of our expansion, we have raised close to \$700,000,000 in the private money markets of the world.

...While we have expanded our ingot production facilities very considerably in the Fifties, our fabricating facilities have not been expanded to the same extent.<sup>51</sup>

During this corporate phase of Alcan's evolution as a large multinational enterprise, its most significant Canadian investment was made in the province of British Columbia. This did not mean, however, the Alcan's Quebec operations were reduced in importance. In fact, a year prior to his retirement, E.K. Davis made the following remarks to Alcan's shareholders at the 1946 annual meeting:

At that time as at present, the chief purpose of the company where your money is invested was, and I repeat that it still is, the development for industrial purposes, principally the production of aluminum, of a narrow strip of land some 30 miles long elevated at one end some 300 ft. above the other extremity and over which flows with a degree of fair regularity some 50,000 cu. ft. of water per second.<sup>52</sup>

Mr. Davis' remarks acknowledged the importance of the hydro-electric power potential of the Saguenay River from Lake St. John to tide water which provides the power for Alcan's smelter and chemical plants. In the immediate postwar period, two non-aluminum plants were built at Arvida--a magnesium smelter and a caustic chlorine plant. In 1948, a large automated rod rolling mill

commenced operations at Arvida. A new research and development laboratory was also built at about the same time in Arvida for raw materials, chemical products and smelter processes. Additional investment in Alcan's Quebec power complex took place between 1951-1956 through the construction of Chute-du-Diable, Chute-à-la-Savane and Chute-des-Passes, all on the Peribonka River.<sup>53</sup>

### INVESTMENT IN BRITISH COLUMBIA

Following World War II, Alcan received invitations from numerous governments to look at their hydro potential for investment in a local smelter. The company made a number of exploratory investigations of potential sites including the Gold Coast, British North Borneo, New Zealand, Venezuela and British Guiana. In Canada, Alcan investigated the Hamilton River Falls (now called Churchill Falls) as well as sites in British Columbia.

On December 30, 1950, Alcan signed a power agreement with the government of British Columbia "to proceed with a giant power project in the Kemano-Nechako area of the province with smelter and town at the mouth of the Kitimat River".<sup>54</sup> Less than four years later, "the first ingot was poured at Alcan's north-central British Columbia smelter in August 1954".<sup>55</sup> Corporate management described the Kitimat project as follows:

The \$450,000,000 Alcan project is one of the largest single industrial developments in the world. Its construction involved five separate engineering feats. First a dam was built to impound the waters of a chain of lakes. Second a ten-mile tunnel was driven through the mountain barricade to give passage to the falling waters. Third a powerhouse was carved inside a mountain to convert the energy of the rushing waters into electrical power. Fourth a transmission line was erected to carry the power to the smelter. And finally came the building of the plant and town.<sup>56</sup>

The corporate decision to build the smelter at Kitimat was conditioned by a number of factors, not least of all political. At that time, the political climate in Canada was more stable and hospitable towards private enterprise than in most other countries. Other positive factors included: geographic proximity to the potential power site at Kemano; easy and quick access to ocean harbour and rail line (CNR) connections; ample land area for a major townsite; reasonable climactic conditions; and strategic placement to tap the large western-U.S. and Pacific rim markets including Japan. In order to supply alumina for Kitimat, Alcan also undertook a major alumina plant investment in Jamaica. Its subsidiary in Jamaica, Aljam, came to be as important to Kitimat, as the Demerara Bauxite Company in British Guiana was to Arvida. In the case of the latter, however, metal grade bauxite rather than alumina was the key raw material. In short, it was Caribbean bauxite combined with Canadian hydro power which helped make Alcan in the twentieth century a leading international aluminum firm.

When the decision was taken to build the Kitimat smelter, there were no facilities in the area to house the Alcan employees. Thus, a town had to be built and Alcan was faced with having to initiate and help finance this task. At the outset, Alcan wished to avoid establishing a company town. Unlike the situation in Arvida, Alcan, from the start, deliberately tried to avoid owning permanent employee houses or business establishments. Rather than owning the houses, it helped its permanent employees to finance their acquisition. (It should be noted that in 1976 only a handful of houses are still owned by Alcan in Arvida. They have all since been sold to permanent Alcan employees under favorable long-term financing arrangements.)

Corporate ownership of employee housing tends to suggest corporate paternalism, a stigma which Alcan actively tries to

discourage. In this connection, Alcan employed the consulting services of a New York firm of town planners--Mayer and Whittlesey --to design Kitimat in a way which would help it grow as a well planned town and not as a company camp or company-owned and -managed community.<sup>57</sup> The latter problem was no less difficult in Kitimat than it was in Arvida. The charter for the city of Kitimat was obtained from the province of British Columbia in 1954, and an Alcan employee, Bill Sparks, was elected as the town's first mayor.

In both Arvida and Kitimat, the dominance of Alcan through its investments, operations and employees make it virtually impossible for the company and its personnel not to have a major impact on the economic, political, social and cultural character of the community. For example, in 1975, Alcan had some 3,000 employees on its Kitimat-Kemano payroll, and the total population of the community was approximately 13,500. Assuming that each employee on the average has two dependents, this would mean that the direct Alcan population would number 8,400 or almost two-thirds of the total. The indirect Alcan dependents, i.e., infrastructure such as medical, educational, recreational, and religious personnel would be quite significant, making the livelihood of the town's people largely dependent on the commercial operations of Alcan. This phenomenon became most apparent with "the interruption of expansion in 1957, (which was) brought about by a world surplus of smelter capacity".<sup>58</sup>

During the latter part of the 1950's, Alcan acquired and expanded its fabricating facilities in British Columbia. In late 1956 and early 1957, Alcan purchased the assets of Pacific Coast Aluminum Limited (PACOA) and established its own "Vancouver Works", with an aluminum extrusion plant, a conductor plant, followed by a rod mill on the site of the conductor plant. The Arvida and



Quebec pattern of investing first in power and smelter, followed with some investment in fabricating activities was duplicated in the 1950s in Kitimat and British Columbia.

#### THE ALUMINUM COMPANY OF CANADA

Alcan's principal operating subsidiary, the Aluminum Company of Canada Limited (Alcan Canada) was headed by R.E. Powell during the initial 30-year period (1928-57) of its growth. From 1929-37, R.E. Powell was vice president of the Canadian operation, succeeding E.K. Davis as president of Alcan Canada in January of 1937. Mr. Davis, however, retained his position as chief executive officer of Alcan. Two interesting points should be noted about the organizational relationship between Alcan and Alcan Canada prior to 1957. First, the senior head-office personnel at Alcan was small in number, and second, its most senior executives, President E.K. Davis and his vice presidents, were based in Boston and New York respectively. According to Mr. Whitaker, a former vice president of Alcan Canada:

It has been E.K. Davis' theory that in an international company, the top executives could do a better job on a detached viewpoint and long-range planning if located well apart from the daily on-going of the business.<sup>59</sup>

Mr. Whitaker contends that after 1957, E.K. Davis' "detached viewpoint" orientation was undermined by internal and external pressures. The internal pressure centred around the desire of those senior executives who headed Alcan's service companies to play a more significant role in Alcan's group affairs, and thus in the decision-making activities of Alcan Canada. The five service companies which were then charged with the "administration of Aluminium Limited's interest in and concern for its investments" included the following: Alcan International (sales); Aluminium

Fiduciaries (personnel); Aluminium Laboratories (research and engineering); Aluminium Secretariat (legal and public relations); and Aluminium Securities (finance). These five companies provided their services on a contractual basis to the operating companies, e.g., Alcan Canada, for an appropriate remuneration. The point to note is that each of the service companies was headed by a president who also held a vice presidential position in the corresponding function in Alcan, i.e., the president of Aluminium Securities was also vice president finance, Alcan.

The external pressure of growing Canadian nationalism, appeared to assist the executives of the service companies to argue the need for greater centralization of head office personnel in Montreal. In the words of Mr. Whitaker,

...coupled with a growing Canadian nationalism, the size of the management departments without top bosses on hand, and the desire of many senior Montreal employees to see this move, probably all led to the decision.<sup>60</sup>

The process of Canadianizing Alcan had begun, both in terms of share ownership and management. For example, U.S. ownership of Alcan was reduced from approximately three-quarters in the 1950s to less than one-half in the 1970s, while Canadian common share ownership increased from approximately one-quarter to about one-half.

## VERTICAL INTEGRATION AND ANTITRUST

As previously noted, Alcan's initial marketing strategy was aimed at making it the world's largest supplier of primary aluminum through the establishment of low-cost hydroelectric facilities and smelters in Canada. Corporate management reasoned that countries with major fabricating plants, but devoid of cheap hydro power sources, would view Canada as a key source of low-priced ingot. Thus, between 1950 and 1956, Alcan invested \$560 million (including power), to increase its primary smelting capacity from 475,000 tons to 670,000 tons. A \$350 million investment program was introduced in 1957 to expand the foregoing capacity to one million tons by 1960; however, because aluminum was in oversupply by 1958-59, only a minor part of the expansion program was completed by 1960.<sup>61</sup>

By 1957 it was already apparent that the company's whole marketing plan had been misconceived. The world aluminum industry went into a rapid period of change. Encouraged by a 26¢ per pound price for aluminum ingot, a very high return on investment and tariff protection, large new additions to smelting capacity were planned by companies in other world markets, despite higher power cost. As a result, Alcan's share of the world aluminum market began to shrink. The large increases in U.S. capacity and additional competition, particularly from France and Norway, hurt Alcan in the big U.S. market. Alcoa, Reynolds Metals and Kaiser (with their own excess smelting capacity) aggressively moved into the United Kingdom market, decimating Alcan's almost total dominance of that market in the early 1950's, so that its share was only 40% in 1960. The company's share of the Canadian market also dropped when the Canadian British Aluminium Company (now owned by Reynolds) started up its smelter. Because of increased competition Alcan's share of the world aluminum market fell from 23% in 1952-54 to 13% in 1964 and 13.4% in 1972.

Changing world marketing patterns forced Alcan to shift emphasis from backward to forward integration. Capacity in existing fabricating plants was increased, and new plants were built or acquired in areas which promised increased consumption. From 1951 through 1959 expenditures for fabricating and captive outlets totaled \$58 million. In the following 13 years these expenditures were \$756 million.<sup>62</sup>

The historical evolution of Alcan has to be viewed in terms of its corporate role in relation to Alcoa and in relation to the U.S. antitrust decisions which influenced Alcoa's and in turn Alcan's development. Three interrelated issues need to be examined: first, the extent and intent of vertical integration by Alcoa; second, the separation of the management of Alcan from Alcoa after 1928; and third, the impact of the antitrust decisions. It has been alleged, first, that vertical integration was used by Alcoa to perpetuate market power, and second, that the separate incorporation of Alcan in 1928 did not lead to a management centre separate and independent of Alcoa.<sup>63</sup> A third issue is the extent to which antitrust decisions affected the evolution of Alcan, and the competitive environment for Alcan and Alcoa.

#### VERTICAL INTEGRATION

On the general issue of vertical integration, two conflicting views are held: that firms engage in vertical integration in order to enhance their market power; and the contrary view, that firms reduce the costs of operation by integrating vertically, either due to increased efficiency arising from technical complementarity in production, e.g., energy saving, or due to saving on the costs of market transactions by internalizing these transactions within the firms.<sup>64</sup> As has been shown, Alcoa had to integrate forwards from smelting to fabrication prior to World War I in order to gain



acceptance for aluminum in end uses in competition with established metals. Thus, at this time, forward integration was a necessary marketing tactic. The alternative tactic would have been for Alcoa to have gone out and educated end users on the superiority of aluminum in the hope that they would become buyers. Actually producing end products in competition with existing end products was almost undoubtedly the cheaper way to penetrate the market, although Alcoa bore the risk of failure to gain market acceptance. World War I and subsequently World War II did a magnificent marketing job for aluminum, because of the recognition that the metal received in wartime uses.

By the 1930s, considerable entry had taken place into the fabricated stage of the industry and complaints were made that Alcoa, as a supplier of metal, put independent fabricators in a price squeeze by decreasing the margin between the price the independents paid for metal, and the price at which they could sell fabricated end products in competition with Alcoa.<sup>65</sup> Therefore, it can be argued that integration forwards both promoted and restricted competition. The significance of the restriction depends in large part on the alternative sources of metal for the independent fabricators. These sources were limited because Alcoa was the sole U.S. metal producer, and imports were restricted by the operation of cartel arrangements outside the U.S.<sup>66</sup>

Integration backwards into alumina production, bauxite mining and hydroelectric generation was undertaken by Alcoa in order to reduce the risks associated with its investment in smelting and subsequently fabrication, and as a way of discouraging the entry of other producers in the U.S. It should be noted that while Alcoa had no competition from producers in the U.S., it was faced, from its earliest years, with import competition from European producers. Since these producers controlled their own bauxite and

alumina sources, it would have been unwise for Alcoa not to have assured its own sources, since there was no reason to expect that an open market for bauxite and alumina would develop, which would provide Alcoa with continuing supplies at a competitive price. Thus, backward integration was a tactic which Alcoa had to undertake in the light of existing international market conditions, and was a tactic which helped to establish and sustain its market position in the U.S. Alcoa's record of investment in hydroelectric power sites in North America appears to be anticompetitive, but Alcan's subsequent investments at Kitimat, and other developments at Churchill Falls and James Bay in Canada suggest that it is unrealistic to think that Alcoa could have monopolized cheap hydroelectric power generation in Canada.

The role of Alcan in this integration process is a by-product of Alcoa's strategy. At the outset, Alcan provided extensive hydroelectric resources for Alcoa, some smelting activity and very little fabrication. Subsequently, Alcan's major contribution to Alcoa was the provision of hydroelectricity and associated smelting facilities. However, as a result of the 1928 reorganization, which established Alcan as a separate corporate entity in Canada, Alcan became the owner and parent company of all Alcoa's foreign corporations (except the bauxite deposits in Surinam). The major change was that, organizationally and as a result of Alcoa's decision, Alcan integrated backwards into bauxite mining. This situation did not alter Alcoa's commercial position as long as it had adequate access to either Alcan's bauxite or Alcan's aluminum ingot. Such was the case up to 1950 when Judge Knox's decision was handed down concerning the postwar remedies to the U.S. aluminum industry, in the light of the 1945 Circuit Court of Appeals decision that Alcoa did monopolize the U.S. aluminum ingot market.<sup>67</sup>

## ANTITRUST

Before examining the particular circumstances leading to the 1950 court decision, it is useful to note certain previous related events. In 1912, Alcoa signed a consent decree in the U.S., in which it agreed not to partake in cartel arrangements that affected competition in the U.S., not to force bauxite supplying companies to refrain from supplying other aluminum producers, and not to limit supplies or charge excessive prices to independent fabricators.<sup>68</sup> Five days after signing the consent decree, the fifth cartel was signed by the European producers and Alcan, an agreement that restricted competition internationally by allocating market shares. Alcoa's representative in this cartel was Alcan, which was not only legal under U.S. law, but the participation by Alcan was communicated in writing to the U.S. antitrust authorities.<sup>69</sup> There was thus a general recognition on the part of U.S. officials that there was a need to stabilize the international marketing environment for aluminum, providing no U.S. company was directly a party to the cartel agreement, and providing nothing in the agreement directly related to restricting import competition in the U.S.

Alcoa was thus no stranger to the antitrust department when the principal U.S. antitrust case involving Alcoa and Alcan was initiated in 1937, and formally ended 20 years later in 1957. The major events in the case are set out chronologically in Exhibit 3.

On April 23, 1937, the U.S. Government filed a petition in District Court charging Alcoa with monopolizing interstate and foreign commerce, particularly in the manufacture and sale of 'virgin' aluminum ingot. The District Court entered judgment in favor of Alcoa, dismissing the complaint on July 23, 1942. The Government appealed the decision to the U.S. Supreme Court, but

EXHIBIT 3  
THE ALCOA ANTITRUST CASE  
A CHRONOLOGICAL TABLE

April	1937	U.S. Department of Justice files a complaint under the U.S. antitrust laws naming as defendants Aluminum Company of America (Alcoa), 25 of its subsidiaries and affiliated companies including Alcan and 37 of its directors, officers and shareholders. The complaint alleges that Alcoa monopolized the manufacture of virgin aluminum ingot, and the sale of aluminum sheets, alloys, bars, etc. in the U.S.
June	1938	Trial starts in District Court and continues until August 1940 under Judge Caffey.
Sept.	1941	Judge Caffey delivers the District Court opinion in favour of the defendants (44F.Supp.97).
July	1942	District Court officially enters its judgement and dismisses the complaint. The plaintiff (government) appeals the judgement which is heard by the Circuit Court of Appeals because a quorum of judges could not be formed in the Supreme Court.
March	1945	Circuit Court of Appeals delivers its decision which upholds the District Court decision except to state that Alcoa does monopolize the market for aluminum ingot. Circuit Court states that when the war ends a decision should be made concerning a suitable remedy re monopolization of the ingot market. Dissolution of Alcoa should only be made if it provides a remedy.
March	1947	Alcoa enters a plea that it no longer monopolizes the ingot market.
Sept.	1948	Government enters a plea that Alcoa continues to monopolize the ingot market and that divestment should take place.
March	1949	A trial dealing with these pleas begins in District Court and continues to January 1950.



### EXHIBIT 3

(Continued)

- June 1950 Judge Knox renders his decision as to an appropriate remedy based on evidence of September 1949. He is not concerned with determining whether there has been or is a breach of the Sherman Act. The main aspect of the decision is that "the shareholders of Alcoa be required to dispose of their stock interests either in Limited or Alcoa".
- Jan. 1951 The Court orders disposal of the stock within ten years. Pending disposition, three trustees are appointed by the Court to exercise the voting rights of the shares of Limited which are to be sold off. The trustees are Dr. Donald K. David, John L. Sullivan, and the Chemical Corn Exchange Bank which was represented by N. Baxter Jackson. The three trustees are elected to the board of Limited.
- Dec. 1957 The trustees arrangements end, although the trustees remain on the board, and the voting restrictions apply to the small balance of shares outstanding.\*

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\*As a result of the court order, 1,292,175 shares of Limited had to be sold and a further 524,195 shares were voluntarily submitted to the court's jurisdiction for voting by the trustees but not for disposal. These two blocks of shares represented 35% and 14% respectively of the stock of Limited. By 1957, 80% of the 1,292,175 shares had been sold and the remainder represented 5% of the stock of Limited: the shares with voting restrictions represented 9% of the stock of Limited.

Source: U.S. v. Alcoa, 91F.Supp.333, June 2, 1950, which makes reference to the 1942 District Court decision (44F.Supp.97) and the 1945 Circuit Court of Appeals decision (148F.2d 416).

due to the absence of a qualified quorum, the appeal was heard by the Court of Appeals for the Second Circuit. The Court of Appeals upheld the decision of the District Court except that it stated that Alcoa had illegally monopolized the aluminum ingot market contrary to Section 2 of the Sherman Act. However, the Court of Appeals ruled that no remedy should be applied until the end of the war, at which time the remedy should take into account the competitive conditions prevailing in the industry.

The evaluation of competitive conditions in the industry was made by Judge John C. Knox of the U.S. District Court, S.D. New York on June 2, 1950. A comprehensive examination of the U.S. aluminum industry was undertaken for the period 1947 to 1949, with respect to the production process, competition between primary and secondary aluminum ingot, market shares of Alcoa, Reynolds, Kaiser and imports, comparative firm costs of production, comparative financial positions of the firms, disposal of production facilities created during the war, and patent policies. However, a major element of the evaluation consisted of a discussion of the past, present and future role of Aluminium Limited as a competitive force in the U.S. market.

The detailed examination by Judge Knox provides a fascinating insight into the interrelationship between a large corporation, Alcoa, and various agencies of the U.S. government over a period of ten years.<sup>70</sup> Judge Knox argued that his responsibility was "to decide whether under present conditions (1949), Alcoa's monopoly has been destroyed, and if not, to take such steps as to nullify the continuance". The issue was answered by the court ordering that "the shareholders of Alcoa be required to dispose of their stock interests either in Limited (Alcan) or Alcoa", and that certain agreements containing patent "grant-back" provisions be terminated. However, it is the facts and reasoning which led to

these remedies which are of interest and will be summarized below, in order to show how Alcan fitted into the picture.

At the outset, Judge Knox agreed with Judge Caffey's findings in the District Court that between 1928 and 1940 there were no improper relationships between Alcoa and Aluminium Limited, and that neither company's activities were dominated by the other as a result of joint stock ownership. Judge Knox then evaluated the U.S. government's contention that, as of 1949, joint stock ownership constituted a threat to effective competition between Alcoa, Reynolds and Kaiser in the U.S. market, and provided Alcoa with special advantages from Alcan which were unavailable to Reynolds and Kaiser. The government also alleged that Alcan's ingot production by way of imports, had been used as a substitute for Alcoa's own output so as to reduce Alcoa's market position in order to forestall divestiture by the court.

The court argued that the competitive significance of Aluminium Limited in the U.S. domestic ingot market was quite different in 1949 than formerly for the following reasons. First, the company's ingot costs of production plus the U.S. tariff on ingot allowed it to have lower mill costs than Alcoa, Reynolds and Kaiser, and physical location gave it a major advantage in the northeastern U.S. market due to low transportation costs. Second, Aluminium Limited was a major exporter to the U.S., Europe, and Asia. As the industry in these two latter areas recovered from the war, more of the company's production would be directed at the U.S. market, thus providing a competitive potential which could be exercised if no circumstances restrained it. Third, in 1947, 96.2% of Aluminium Limited's exports to the U.S. were sold to Alcoa, 65.2% in 1948 and 78.3% in the first nine months of 1949, so that there was concern that Alcoa in fact controlled the competitive potential of the company's ingot in the U.S. market.

The nub of the court's decision to order share divestiture was contained in the concluding evaluation to these three aspects of the industry, and is best captured in the original wording:

My conclusion is that the purchase agreement was not the product of a deliberate effort by Limited to favour Alcoa, but more accurately, was the result of Limited having ingot to sell, and Alcoa being the most ready and dependable purchaser....

The outstanding feature of the foregoing recital is that Limited has large quantities of primary available for disposition in the United States. During the past few years, however, this metal has not contributed substantially toward fostering competitive conditions, because Alcoa has absorbed the lion's share. It is, I think, improper to draw an inference of favoritism from this fact alone. Nevertheless, I believe that in order to properly safeguard the public interest bespoken by the Sherman Act, it is highly expedient that there be no restraints whatever on the competitive potential which now exists from Canadian production.

...since Limited is now a competitive force in the domestic market, Alcoa's relationship to Limited jeopardizes the public interest to a degree not present when this case was tried before Judge Caffey. I think it too much to expect that the competition between Alcoa and Limited, now that they both participate in the same market, will be as keen and comprehensive as the Sherman Act demands. While there may be active rivalry between them for customers, since the controlling share holders of these corporations may not prefer one of these companies over the other as the source of their dividends, it is doubtful that the stimulants to price competition and efficiency, from which the public benefits, can exist to the same degree as would be the case if these firms were wholly disassociated.<sup>71</sup>

At this point, the court referred to the corporate personalities involved and their relationships in support of its view:



Note must be taken of the fact that the President of Aluminium Limited, Nathanael V. Davis, a young man of 34 years, has occupied this position for almost two years. He is the son of Edward K. Davis, former President of Limited, now retired, and a nephew of Arthur V. Davis, Chairman of the Board of Alcoa, and its largest single shareholder. As a witness, the manner and ability of young Davis impressed me favourably. Nevertheless, since his own holdings in Limited are a mere 275 shares, and his uncle Arthur V. Davis, is the largest single stockholder in Limited, owning almost ten times more shares in that company than Edward K. Davis, it is easy, and even natural, to suppose that family influences played some part in his elevation to office.

Now that Limited is a vital competitive factor in the domestic market, some cognizance of these family ties must be taken into account. Among normal individuals, blood is usually thicker than water.<sup>72</sup>

In sum, despite no wrongdoing, the control over Aluminium Limited that could be exercised by the controlling stockholders of Alcoa was a "resource of economic importance", and it was this "potential power" which justified the court's remedy.

A second line of reasoning used by the court demonstrated the evolving relationships between Alcoa, Reynolds and Kaiser in the U.S. market since 1941 when Reynolds first entered the industry. Particular attention was given to the disposition of plants which had been built largely by Alcoa with government financial assistance during the war. Alcoa proposed a plan for disposition which was opposed by the U.S. Department of Justice because it would increase Alcoa's market share. A great deal of jockeying took place between the companies and those parts of the U.S. government concerned with antitrust, patents and the disposal of wartime assets. At one point, Alcoa released to the press a 45-page "letter of protest" against the disposition proposals

contained in a government board's report. Judge Knox commented on the letter as follows:

The theme of this document was that the Board had grossly exaggerated Alcoa's competitive strength, and consequently, with a view to destroying Alcoa, had proposed a "cradle to the grave" subsidy program for the industry which, once entered upon, could never be terminated. From the intemperate wording of the letter, its many misstatements, and its misrepresentation of the Report by quotations improperly abstracted from their contexts, it is hard to believe that it was not a deliberate attempt to set a gloss upon the Board's work.<sup>73</sup>

This action by Alcoa, together with its proposed patent licensing arrangements, served to convince the court that Alcoa did not eagerly abandon its prewar dominance, and only yielded when insistent demands were made upon it. The patent issue arose in connection with the sale of Alcoa's wartime plants to Reynolds and Kaiser. In order to utilize these plants effectively, the patented technology, which had been developed, at least in part, with government support, had to be licensed to the purchasing companies. After lengthy negotiations, Alcoa agreed to royalty-free licences on alumina patents, providing that any improvements on the licences would be granted to Alcoa on a royalty-free basis with the right to sublicense to others. The court concluded:

After careful study of the problem, I have concluded that the grant-back provisions, in the peculiar context of this industry, constitute a potential restraint on the restoration of lawful competitive conditions to such an extent as to require appropriate remedial action. The patented processes involved are basic to the economical manufacture of alumina.<sup>74</sup>

In sum, the decision to separate Aluminium Limited from Alcoa was based on two sets of issues. First, it was argued that, providing the two companies were separate entities, Limited could

act as a competitive element via imports in the U.S. domestic ingot market, and thus diminish Alcoa's dominance of that market. Second, the emergence of Reynolds and Kaiser as competitors to Alcoa could be undermined if Alcoa had a preferred relationship with, and access to, Limited due to joint stock ownership. The behavior of Alcoa in the restructuring of the U.S. aluminum industry after the war had been such to suggest that it would try to sustain the dominant position, which was felt not to conform to the desire for "effective competition" in the industry.

As a result of the 1950 Court decision, the ownership of Limited (Alcan) became separated from that of Alcoa, with Limited owning the foreign assets and integrated facilities which had been received as a result of the 1928 organizational rearrangement. These two events provide major forces in the development of Limited as a Canadian multinational. The lack of integration forwards into fabrication facilities, which was noted resulted from the role which the company played up to 1950 as a major supplier of ingot to Alcoa's U.S. operations and to other overseas markets. Since that time, Alcan has found it necessary to integrate forwards to assure itself of markets for its metal.

Alcoa and Limited always officially maintained that they were managerially separate from 1928 to 1950, while the contention of the U.S. government and others in 1949 was that this was not the case. Of the many pieces of evidence with respect to this issue, the following are significant. A.V. Davis stated that Alcoa and Limited were "not set up for the purpose of competition", and Roy Hunt stated that Alcoa had no intention "to have competition" between the two companies. Further in 1937, Dr. E. Blough, a vice president of Limited, reporting on a meeting dealing with aluminum supplies for a projected aircraft engine plant in China said: "The Aluminum Company of America assured Pratt and Whitney

that they will be glad to cooperate...either directly or indirectly through Aluminium Limited, as may be later developed".<sup>75</sup>

These statements, together with the limited integrated nature of Limited and its supplies of ingot to Alcoa, strongly suggest that up to 1950, Limited was managerially influenced by Alcoa.





CORPORATE STRATEGY AND STRUCTURETHE CORPORATE STRATEGY

In predominantly private enterprise economies, corporations operate in a state of relative uncertainty, heightened by market rivalries which are usually triggered off by growing markets and advancing technologies. A normal response to this situation is for the firm to develop strategies and create structures designed to insulate it from the more extreme form of competitive pressures. This chapter examines the evolution of the corporate strategies and structures of Alcan Aluminium Limited (called "Alcan" in this chapter) from 1958 to 1976.

Strategy may be defined "as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals".<sup>1</sup> The year 1958 signaled a basic change in Alcan's corporate strategy. In the 1958 annual report, corporate management stated: "the Company is placing greater emphasis on the establishment and enlargement of fabricating plants whose function it is to broaden the sales and application of aluminum products and to provide larger outlets for the Company's primary aluminum". Alcan's marketing strategy up to this time had been to be the leading supplier of primary aluminum to the world market through the development of low-cost hydroelectric facilities in Canada. That the company profited from pursuing this strategy for many years cannot be denied. Nevertheless, Alcan's role of being a producer's producer was undermined by some of its key customers.

In 1956, a number of Alcan's customers proceeded to

internationalize their domestic operations, expanding their own production facilities, as well as vertically integrating upstream, thus becoming increasingly less dependent on Alcan's metal. For example, in 1959, Alcoa joined forces with Imperial Chemical Industries (ICI) and established Imperial Aluminium Limited with fabricating facilities in Wales. A few years later, Alcoa and ICI jointly organized the largest secondary smelter in the United Kingdom, in addition to expanding their fabricating capacity. In 1960, Kaiser acquired a one-half interest in James Booth Aluminium Limited of Manchester. This firm has major fabricating facilities in the U.K.; two years later, in 1962, it installed the largest hot rolling mill in Europe. Prior to 1957, Alcan was the only aluminum producer operating in Canada. During the closing days of 1957, a combination of U.K. and Canadian interests, Canadian-British Aluminium, began producing primary aluminum in Canada. Within four short years, the smelter capacity of this primary producer, now owned by Reynolds Aluminum Company of Canada, was approximately 12% of Alcan Canada's capacity in Canada,<sup>2</sup> increasing to about 15% in 1976. In part, this growth of the world aluminum industry which commenced in 1957 with the expansion of the U.S. and European aluminum producers, contributed to nearly a decade of surplus smelter capacity. This excess capacity was especially damaging to Alcan.

With insufficient captive outlets for its ingot, Alcan was in a particularly vulnerable position. The resulting challenge upon Alcan, as shareholders are aware, was to bolster the firm demand load on its Canadian smelters through the expansion of fabricating activities in markets where business could be created.<sup>3</sup>

## FORWARD INTEGRATION INTO FABRICATION

The company thus proceeded to invest more of its capital into new functions, i.e., vertically integrating into fabrication, as well as diversifying by investing in the manufacture of new lines of business involving the use of aluminum. This major investment program into fabrication took the form of expansion of existing facilities, acquisitions, and the establishment of new fabricating units. The broad classifications of fabricating include forging, casting, rolling and extruding. The starting point for fabrication is normally either rectangular or round ingot. The ingots may be acquired readymade from the smelter to the exact composition and shape required, or may be manufactured at the fabricating plant by remelting the commercial aluminum ingot and recasting it to the desired shape after the inclusion of the different non-aluminum alloying materials. The important point to note is that while the manufacture of primary aluminum is a combination of processes requiring extremely high capital investment per unit of production, some phases of the fabrication of the metal into consumer products are ideally suited to light manufacturing industries necessitating relatively low capital investment except in the case of sheet rolling. This fact explains why there are literally thousands of independent aluminum fabricators throughout the noncommunist world.

Table 3 provides an estimated breakdown of Alcan's additions to fixed assets by type, illustrating the significant shift in the company's investment priority from raw materials and smelting to fabricating. For example, between 1951 and 1966, Alcan's additions to fixed assets totalled \$1,621,000,000 of which raw materials, smelting and power accounted for 79% of the total investment and fabricating for 21%. From 1967 to 1972, the additions to fixed assets totalled \$956,000,000 raw materials, smelting and power accounted for 51% of the total, and fabricating for 49%. This



TABLE 3

ESTIMATED BREAKDOWN OF ALCAN ALUMINIUM LTD.'S  
ADDITIONS TO FIXED ASSETS BY TYPE

(\$ Millions)*				
<u>Year</u>	<u>Total</u>	<u>Smelter, Alumina Bauxite, etc.</u>	<u>Fabricating</u>	<u>Power</u>
1951	124	33	4	87
1952	186	55	4	127
1953	132	60	2	70
1954	50	23	4	23
1955	71	60	4	7
1956	127	90	7	30
1957	184	104	11	69
1958	106	40	10	56
1959	62	15	12	35
1960	70	36	23	11
1961	66	21	41	4
1962	65	28	37	-
1963	65	22	43	-
1964	67	45	22	-
1965	133	91	42	-
1966	113	33	80	-
1967	176	51	125	-
1968	136	71	65	-
1969	177	72	100	5
1970	171**	76	80	15
1971	168**	95	53	20
1972	128**	83	45	-

\* Figures prior to 1964 in Canadian dollars.

\*\*Including government development grants of \$7, \$15, and \$10 million, respectively.

Source: Alcan Aluminium Ltd., Annual Reports.

pattern of resource allocation was aimed at achieving two key goals, implicit in Alcan's new strategy of reducing its global market vulnerability. First, "to shift to higher valued fabricated products" and second, "to ensure an outlet for its ingot".<sup>4</sup>

Alcan's corporate performance improved significantly because of the adoption of the new strategy. For example, during the period from 1959 through 1968 when Alcan initiated a major reorganization of its structure, aluminum sales tonnage almost doubled, gross revenues more than doubled, and net income nearly tripled (see Table A-1). It was noted that Alcan's investment in fabricating in the 1960s substantially improved and solidified the quality of its earnings.

...by increasing the captive load on its own ingot production rather than selling its primary in a highly competitive market, Alcan improved profitability through fabrication. For example, rather than realizing only 3.63¢ per pound on ingot sales in 1972, the company was able to add a net 5.16¢ per pound through fabrication. Significantly, the upgraded profit was not really reflected until 1970. At that time, the company's fabricating facilities began to benefit from economies of scale and from the increased volume achieved by the sales organization.<sup>5</sup>

By 1970, this strategy of forward integration had brought the company to a significant threshold.

...for the first time, Alcan's shipments of fabricated products in all forms exceeded shipments of primary ingot (See Table A-1). 1970 revenues from the sale of fabricated products represented just under 70% of total aluminum sales revenues, and slightly over 60% of gross profits on same....I should point out here that fabricating gross profits are calculated on an integrated basis which includes profits at the raw materials and primary stages.

These figures may not seem particularly remarkable in themselves since they still leave us below the comparable figures for our major U.S. competitors. However, what is significant is that over the last ten years, while these competitors have either maintained or even reduced the percentage of their fabricating sales relative to ingot, Alcan has raised its fabricating tonnage from 36% to 51% of overall sales tonnage, and its gross integrated profit on fabricating from 42% to over 60% of gross profit from aluminum operations. This increase has been achieved at some considerable cost in terms of capital expenditures and start-up expenses. While this program has contributed to profits by providing increased outlets for metal, there has been little return on the investments made when measured solely at the fabricating level.<sup>6</sup>

Table 4 presents the estimated gross profits per pound for sales of ingot and fabricated products. Gross profit per pound measures the profits on revenues after deducting the cost of goods sold and depreciation, before subtracting financing and selling expenditure.

TABLE 4  
ALCAN GROSS PROFIT COMPARISONS  
(Fabricated Minus Ingot = Upgraded Profit on Ingot)  
(Cents per pound)

	Fabricated	-	Ingot	=	Upgraded Ingot Profit
1961	8.67		6.76		1.91
1962	8.89		6.47		2.42
1963	8.45		5.55		2.90
1964	9.46		7.18		2.28
1965	9.07		7.85		1.22
1966	10.02		7.39		2.63
1967	8.59		7.19		1.40
1968	8.99		6.51		2.48
1969	9.80		7.01		2.79
1970	9.56		6.33		3.23
1971	9.46		5.19		4.27
1972	8.79		3.63		5.16

Source: Alcan Aluminium Ltd., Annual Reports

The decade of the 1960s brought about some fundamental changes in the business life and character of Alcan, changes which cannot be perceived merely by examining the company's financial performance. One major change resulted from investment into forward integration. This shift in emphasis from smelting to fabrication, lessened Alcan's dependence on commodity ingot prices and thus allowed the company to improve its profit margin on ingot, through its usage in the manufacture of its own fabricated products. By increasing its own fabricating capacity, Alcan has been able to utilize more of its own primary aluminum production, and has thus been far less reliant upon primary ingot sales to third parties (see Table A-2). In 1972, for example, fabricated products accounted for approximately 60% of the Company's gross revenue. Alcan's strategy of fabrication has allowed it to realize a primary-to-fabricating ratio comparable to that of Reynolds and Kaiser, two firms which have been singled out for their innovative marketing strategies.

Professor Theodore Levitt notes that "aluminum has (also) continued to be a growth industry, thanks to the efforts of two wartime-created companies which deliberately set about creating new customer-satisfying uses. Without Kaiser Aluminum & Chemical Corporation and Reynolds Metal Company, the total demand for aluminum today would be vastly less".<sup>7</sup> In the context of marketing practices, Alcan's "1958 corporate strategy" signaled a gradual shift in the company's merchandising emphasis from one of product-sales to one of generating customer-satisfying uses of aluminum. From the very beginning, Alcan's sales philosophy was "to push demand and thus attempt to keep from being swamped by the surplus seeming to pursue us". This approach was coined by Alcan as "Translation Uses" (product orientation) or "taking the message and technique of successful applications from proven markets to new



areas". In the 1960s and especially in recent years, the "Translation Uses" approach has given way to the application of the marketing concept (customer orientation), i.e., "a new and natural aluminum application may be successfully introduced in a market by working with engineers and product designers", and that "experience shows that real penetration and maximum consumption can result only from intensive effort in the marketing area, applied by the aluminum producer or fabricator and not alone by the maker of the finished product".<sup>8</sup>

The decision to invest into fabrication had another major impact on Alcan's physiognomy, namely on the nature, size and geographical diversity of its foreign operations. The most significant development took place in the United States. In a short time span, Alcan's U.S. sales organization was transformed into a major foreign operating subsidiary with significant implications for Alcan's intra-corporate arrangements, specifically those involving Alcan Canada. In less than four decades, Alcoa's former offspring gave birth to the fourth largest aluminum fabricator in the United States, with Alcan ranking a close second to Alcoa as the largest aluminum producer in the world.

#### ECONOMIC INTERDEPENDENCE-- FABRICATION IN THE U.S.

In 1944, Alcan formed the Aluminum Import Corporation in New York to sell aluminum ingot to industry in the United States. Three major factors prompted Alcan to develop the U.S. market: first, the size and long range growth of the U.S. market; second, the U.S. aluminum industry was not in a position to satisfy its entire domestic requirements with low-cost aluminum; and third, since the production of aluminum required large amounts of cheap electricity to be competitive, Alcan's hydroelectric base and

geographical proximity to the U.S. placed it in a position to compete as a natural supplier of aluminum to the U.S. market.<sup>9</sup>

From 1945 until 1963, Alcan did not have a single manufacturing plant in the U.S. and operated strictly as a seller of Canadian ingot. At first, Alcan merchandised its products both to the major aluminum producers and independent fabricators; however, when the other major aluminum producers began to integrate vertically and internationalize their operations, Alcan found itself by 1959 restricted largely to supplying its ingot to independent extruders and, secondarily, to being involved in special swap or tolling arrangements. As a result of these developments, Alcan's U.S. sales dropped from a high of 233,000 tons in 1956 to a low of less than 100,000 tons of aluminum shipped in 1960. The U.S. market situation, plus the 1957 business recession in North America led Alcan's management to conclude

...that its role of aluminum ingot supplier to the world was a failure and it embarked on a long-term plan to pump millions of dollars into its own fabricating facilities around the world. The most significant of these major developments was the start of Alcan fabrication in the U.S....<sup>10</sup>

Exhibit A-1 is a chronology of Alcan Aluminum Corporation's (Alcancorp's) emergence as the fourth largest aluminum fabricator in the United States. Underlying the policy of acquisition, expansion and new investment into fabricating is Alcan's belief that in order to maintain and expand its position in the U.S., the world's leading and most sophisticated market for aluminum, Alcancorp's fabricating facilities must be equal in efficiency if not range to its U.S. competition. A major distinguishing feature of Alcancorp is that unlike its major U.S. competitors (Alcoa, Reynolds and Kaiser), it functions strictly as a fabricating and distributing company, not producing a single pound of primary

aluminum in the U.S., relying largely on Alcan Canada for its ingot. By the end of 1974, ingot and fabricated product sales to third parties in the U.S. represented some 27% of Alcan's total world wide sales in tonnage, and the U.S. accounted for approximately 11% (\$241 million) of Alcan's total capital employed (see Table A-3). According to Mr. Eric F. West, President of AlcanCorp,

...roughly 50% of the aluminum tonnage we move in the U.S. is in the form of fabricated and consumer products, with the remainder in ingot form. This latter makes us the major supplier of aluminum ingot products in the U.S. to third parties... Although we are only part of the Alcan group, if we were a separate corporation standing alone in the U.S., we would be well up in the list of Fortune's top 500 U.S. industrial corporations.<sup>11</sup>

The importance of AlcanCorp's contribution to Alcan's success or for that matter Alcan's impact on Canada's balance of payments cannot be underestimated. "Approximately 75% of U.S. ingot imports comes from Alcan and 80% from Canada as a whole."<sup>12</sup> Table 5 demonstrates the dominant export position occupied by Alcan as a supplier of primary aluminum to the U.S. market.

The significance of the U.S. market, and its implications for Alcan's growth and development is of continuing concern to corporate management. In his remarks to the 40th (1968) Annual Meeting of Alcan shareholders, President Davis stressed that:

...Alcan has for many years supplied the United States market with primary aluminum. Looking ahead, the North American market, which accounts for over half of the total usage in all the markets served by the Company, will require increasing quantities of primary aluminum. The North American market, therefore, offers the largest potential market for Canadian primary aluminum production. For this reason considerable emphasis is being put upon expansion of the Company's fabricating and finished product activities in Canada and in the United States on an increasingly

TABLE 5

U.S. ALUMINUM STATISTICS

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	(Short Tons)					
Production of primary aluminum	3,976,148	3,925,224	4,122,400	4,529,100	4,903,426	3,879,153
Imports from all sources	350,165	554,683	657,431	508,000	508,224	550,280
Imports from Canada	327,134	441,304	508,500	430,200	408,280	374,135
Percentage of total imports	93.4%	79.6%	77.3%	84.7%	80.3%	68%
Imports from Alcan	322,000	419,000	409,675	372,258	377,107	280,752
Percentage of total imports	92.0%	75.6%	62.3%	73.3%	74.2%	51%

Source: Alcan Statistics



coordinated basis. These plans are predicated upon reliance on Canada as a main source of primary metal for some years to come. Thus we foresee growing interdependence between our Canadian and United States operations which seems consistent with the growing interdependence of the two countries now so apparent in an unbalanced world.

We would also hope that additional tariff reductions between Canada and the United States on aluminum products could prove a progressive move towards rationalizing the industrial structures of both economies and a helpful precedent towards the ultimate freeing of all world commerce in aluminum to the benefit of consumers everywhere.<sup>13</sup>

Corporate interdependence and integration between AlcanCorp and Alcan Canada explains why Alcan actively promotes the formation of a North American free trade arrangement in primary aluminum. This policy is pursued with equal zeal in Washington and Ottawa. Eric A. Trigg, former president of AlcanCorp, in a presentation before the Trade Information Committee on April 8, 1968 in Washington included the following remarks:

As president of a U.S. manufacturer of aluminum products, I would like to stress our Company's support of free trade in aluminum....

The development of Canada's aluminum smelters was accelerated in World War II and again in the early 1950s to provide an economic and safe source of this strategic material for the U.S. industry. This common cause was the first step in North American regionalization and Alcan's participation in the stockpile disposal was a recent reaffirmation of this early linkage. The continued development of the North American region will assure a continuing reliable source for hemisphere defense requirements should overseas supplies ever be jeopardized by new hostilities.

We believe that the total elimination of tariffs

on all aluminum traded within this region would be a constructive and progressive step along the established U.S. policy road aiming ultimately at complete international free trade in aluminum. Such a step would fit the evolving pattern of trade relationships between Canada, the United States, and the countries of the Caribbean, recognizing that the tariff barriers no longer serve any useful purpose in the movement of ingot and semi-fabricated products among the countries involved.

Alcancorp's proposal for a preferential aluminum trade pact met with immediate resistance from its major U.S. competitors. The reasons for the negative reaction included the following: the Canadian market is only one-fifteenth the size of the U.S. market; Canada exports ninety times as much to the United States as the United States does to Canada; Canadian industry's duty savings would dwarf that of the United States; and since Alcan Canada is the major exporter of primary aluminum to the United States and Alcancorp is the largest exporter of hot mill coil to Canada, Alcan stands to gain most from the benefits of any free trade arrangement involving semi-fabricated and fabricated products.<sup>14</sup>

Alcan's interest in promoting free trade in primary aluminum, however, has not been weakened by the resistance encountered in the United States. Alcancorp's management have made numerous presentations before Congressional committees and other forums arguing the merits of reducing tariff and non-tariff barriers between national boundaries. Similar tactics have been employed by Alcan Canada towards the Canadian government. In a recent submission to the Canadian government, Alcan Canada urged Canada's trade negotiators to:

(a) Assure the free movement of and access to raw materials particularly bauxite and alumina, at stable and economic prices.

(b) Eliminate or reduce tariffs on primary aluminum ingot particularly in the U.S.A., Japan and the EEC.

(c) Note that, although Alcan recommends immediate removal of tariffs on primary ingot, the position on semi-fabricated and fabricated products is more complex. Alcan's own fabrication facilities could adjust over time to staged reductions in existing Canadian tariff levels but there could be an adverse effect on jobs in Canada. This area, therefore, requires continued close consultation between Government and industry.

(d) Work towards an international agreement on how antidump and countervailing regulations and other non-tariff barriers can be administered in a consistent and predictable way. Attempts should also be made to achieve a clear definition of what constitutes injury and what subsidies or grants are internationally acceptable.<sup>15</sup>

A few explanatory comments are in order with respect to the foregoing recommendations. With the exception of Australia, the bulk of Alcan's investment in bauxite and alumina is in the Third World. The nationalization of Alcan's subsidiary in Guyana in 1971, the pervasiveness of nationalism and its accompanying hostility towards foreign investment, and the formation of a bauxite producing country cartel (the International Bauxite Association) largely representative of the views of the Third World are some of the reasons which underlie recommendation (a). As for the second recommendation, (b), Alcan Canada contends that its ability to compete in third countries such as the United States, the European Economic Community and Japan will be influenced in part by further reductions or elimination of their tariff duties and other barriers on ingot. Equally important, Alcan Canada's future decision to modernize, expand, and site new smelters in Canada will be conditioned by the foregoing situation.

In the case of semi-fabricated and fabricated aluminum products, Alcan Canada does not advocate free trade in the short-run, recommendation (c). The Company explains away this juxtaposition by contending that without Canadian tariff protection, the larger U.S. aluminum producers and fabricators would swamp the Canadian market in times of overcapacity by simply unloading incremental tonnage into Canada. This was allegedly the situation in 1972 and 1973 when the U.S. exported 25,000 and 32,000 tons of sheet and plate respectively. While the 1973 figure represented only 1% of U.S. annual sheet production, it accounted for 34% of Canadian sheet production. Table 6 gives the estimated relative production of the fabricating industry in the United States and Canada, and Canadian production as a percentage of U.S. production.<sup>16</sup>

TABLE 6

COMPARISON OF CANADIAN AND U.S. FABRICATION PRODUCTION, 1973

(Thousand Tons)

<u>Product</u>	<u>U.S.</u>	<u>Canada</u>	<u>Canada as a percent of U.S.</u>
Sheet and Plate	2,870.0	94.0	3.3
Foil	387.0	21.6	5.6
Extruded Products	1,203.0	84.5	7.0
Cable	468.0	56.0	12.0
Wire, Rod, Bar	207.0	6.6	3.2
Castings	1,013.0	46.6	4.6

Source: Alcan Brief to Canadian Trade and Tariffs Committee, July 30, 1975.

Alcan Canada's submission makes the further point that while there are 53 plants producing sheet and plate in the United States, only 3 such plants exist in Canada. Moreover, the size and structure of the Canadian market does not justify the establishment of a major sheet mill outside of the provinces of Ontario and Quebec.

The last recommendation (d) makes reference to the problem



of anti-dumping and the definition of injury. Alcan Canada's recent experience with the U.S. Tariff Commission provides an illustration of such a problem. On May 18, 1972, the United States Treasury Department filed notice of commencement of an investigation under the U.S. Anti-Dumping Act relating to imports of aluminum ingot from Canada. The primary subject of this investigation was the Aluminium Company of Canada. A year later, in May 1973, the U.S. Treasury Department ruled that Alcan Canada was guilty of technical dumping of primary aluminum in the U.S. market from 1971 through 1973. Although technically guilty of the dumping charge, a sentence could not be rendered unless the U.S. Treasury could show that Alcan Canada's commercial actions were resulting in present or future injury to the U.S. aluminum industry. This it could not prove and on August 15, 1973, the Commission ruled that sales of Canadian ingot in the U.S. were not causing and were not likely to cause injury to the U.S. industry. Thus, no dumping duties were applied to Alcan Canada's shipments to the U.S. and the case was dismissed. A most interesting aspect of this case is that Alcoa was the complainant, a fact which was not learned until after the investigation was launched.<sup>17</sup> Thus, the relationship between Alcoa and Alcan appears to have come full circle, from offspring to a "threatening" competitor.

#### ALCAN CANADA AND INTRACORPORATE INTERDEPENDENCE

Substantially, all of AlcanCorp's primary aluminum requirements are obtained from Alcan's Canadian smelters. The company's five smelters are located at Arvida (annual capacity 454,000 tons), Isle Maligne (105,000 tons), Shawinigan (95,000 tons) and Beauhar-  
nois (51,000 tons) in Quebec, and at Kitimat (295,000 tons) in British Columbia. Table 7 lists Alcan Canada's primary metal

production for the years 1970-75, and the company's annual smelting capacity.<sup>18</sup>

TABLE 7  
ALCAN'S CANADIAN PRIMARY METAL PRODUCTION  
(in thousands of tons)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Quebec	715	675	598	586	671	600
British Columbia	188	270	282	292	292	238
Total	<u>903</u>	<u>945</u>	<u>880</u>	<u>878</u>	<u>963</u>	<u>838</u>
Annual Capacity	1035	1035	1035	1035	1035	1000
% of Capacity	87.2	91.3	85.0	84.8	93.0	83.8

Source: Alcan Statistics.

Alcan Canada's intracorporate aluminum sales arrangements are not limited to AlcanCorp. For example, in 1974 Alcan Canada entered into a long-term agreement with one of Alcan's related<sup>19</sup> companies, Nippon Light Metals of Japan in which Alcan has a 50% ownership, "whereby the Company (Alcan Canada) will convert at its Kitimat smelter sufficient alumina, supplied to it (by Nippon Light Metals) in Japan, to produce 50,000 tons of primary aluminum annually for this related company for 25 years commencing January 1, 1977."<sup>20</sup> At this time, Kitimat represents 3% of the Western world's smelter capacity and 30% of Alcan's Canadian capacity. The sales agreement between Alcan Canada and Alcan's related company in Japan may provide sufficient financial motivation for Alcan to undertake its first major Canadian smelter expansion program since 1954. According to a financial analyst,

...because of the lack of low cost power elsewhere in the world and (Canada's) political stability, we believe Alcan will eventually double its capacity at Kitimat...we think it logical to assume that

Alcan might expand Kitimat in partnership with its 50%-owned Japanese company, Nippon Light Metals. Even after absorption of freight with possible costs of five mills per kwh for power in Canada versus 10-15 mills in Japan, such a venture would represent a significant cost saving to the Japanese company and provide Alcan with a heavy base load to permit maximum expansion of capacity.<sup>21</sup>

The smelting facilities in Canada are largely self-sufficient, drawing on Alcan Canada's and Alcan's other plants, facilities and infrastructure for most of their raw materials and services. For example, the alumina requirements of the company's Quebec smelters are obtained from Alcan Canada's two alumina plants at Arvida (1.4 million ton capacity). Bauxite for these two plants is obtained principally from Alcan's related company in the Boké region of Guinea, West Africa. This related company is a joint venture between the Government of Guinea (49%) and six participating aluminum producers, with Alcan having 13.5% equity interest in the project and contracted to buy about 26% of the bauxite extracted. Prior to the nationalization of Demba, Guyana was the major supplier of bauxite to the Quebec alumina plants. The alumina for the Kitimat smelter is primarily imported from a related company in Australia, and secondarily from a wholly owned subsidiary in Jamaica.<sup>22</sup>

Alcan Canada's chemical operation at Arvida is one of Canada's largest inorganic chemical complexes, producing most of the substances necessary for the process of extracting alumina from bauxite and reducing alumina to aluminum. The chemical operation employed some 1800 persons in 1974, 1700 of whom resided in the Saguenay, and earned an aggregated sales figure of \$22 million. From its own reserves in Newfoundland, Alcan Canada obtained most of its fluorspar, a critical raw material used in primary smelting.

In percentage terms, Alcan Canada "through its own operations, subsidiary and related companies provides for about 70% of its bauxite, 90% of its alumina and 70% of its fluorspar requirements and through its own fabricating and sales subsidiaries in Canada and the United States, sells 65% of its production either in the form of ingot or fabricated products. The balance of the Canadian production is sold through foreign affiliated companies".<sup>23</sup> All critical and necessary raw materials which have to be bought from third parties are usually negotiated by Alcan Canada under long term contracts to ensure adequacy of supply, price discounts, and quality control.

While the bulk of Alcan Canada's primary aluminum output is exported, much of it through intracorporate arrangements, the opposite is the case with its fabricating strategy. As previously noted, the decision to invest into forward integration reflected Alcan's strategy of protecting its traditional markets and developing new ones. In 1974, Canada ranked fourth as a major consumer of aluminum fabricated and semi-fabricated products with a per capita consumption of 38.3 lbs. The rationale for investing in fabricating facilities in Canada in the early 1960s was equally valid: Alcan was the dominant producer of primary aluminum, holding a near monopoly status, and the scope for fabrication and diversification into new end uses for aluminum was both attractive and potentially profitable. Exhibit A-2 provides a listing of some of Alcan Canada's major investments in this area largely in Ontario and Quebec. However, the much smaller size of the Canadian market meant that Alcan's Canadian fabricating strategy would involve the acquisition and establishment of facilities which would produce smaller production runs and a more limited product range.

Thus, although Alcan Canada is the largest manufacturer of fabricated products in Canada, and AlcanCorp is the fourth largest



in the United States, the latter's sales of fabricated products in 1974 totalled 287,000 tons in the United States, while the comparable Canadian figure was 177,000 tons. Corporate management expects sales performance of both the Canadian and U.S. operations to improve significantly during the latter part of the 1970s; however, the sales gap between the U.S. and Canadian operations will continue to widen in favour of the United States.<sup>24</sup>

Responsibility for Alcan Canada's secondary manufacturing operations in Canada rests with Alcan Canada Products Limited (Alcanproducts), a wholly owned subsidiary. Alcanproducts' sales have increased from a total of \$150,000,000 in 1967 to a figure of \$370,000,000 in 1974. This company employs a labor force of more than 5000, and operates some 30 manufacturing plants spread from coast to coast. Alcanproducts and Alcancorp, as a result of the extensive program of forward integration, are now well represented in the markets of many finished products: siding for houses, windows and doors, can stock for container manufacturers, cable, and insulated wire and cable for housing and industrial applications.<sup>25</sup>

Although the strategy of vertical integration of the 1960s and 1970s has favoured investment in larger markets, e.g., U.S., EEC and Japan, continuing reliance on Canadian smelting makes the Canadian part of Alcan's global strategy still the single most important area of operations in terms of assets and employment, if not sales. Alcan employs some 21,000 people in Canada, approximately one-third of its total worldwide corporate labor force (see Table A-4); approximately 13,000 persons operate in Quebec where Alcan manages 70% of its smelting activity, a significant amount of its fabricating activity, and its chemical operations.

## ALCAN'S OTHER FABRICATING ACTIVITIES ABROAD

Next in importance to the U.S. are Alcan's fabricating activities in the European Economic Community and Japan. Of the EEC member nations, the United Kingdom is Alcan's largest fabricating market. In more recent years, Alcan entered into a joint-venture arrangement with VAW, the largest of the German primary aluminum companies, and established a cold mill to serve primarily the continental part of the EEC. Geographic proximity and tariff free access to this large market prompted Alcan to invest heavily in its German operation. In 1971, President N.V. Davis stated,

There are significant economies of scale in the sheet rolling sector. We estimate that a 50,000 ton sheet plant can be installed for about \$700 per ton, whereas a 200,000 ton plant will be somewhere in the region of \$400 per ton. This dictated the decision to establish large-capacity installations at Oswego in New York to serve the U.S. market, and at Norf in Germany to serve primarily the Common Market.

...Inherent in the decision to proceed with these facilities was the recognition of the necessity to operate them at less than economic operating rates in the early years while the markets for the output were being built up. In the case of the Norf facilities, it has taken somewhat longer than we had hoped to achieve this. However, the cold mill, which is currently operating at about 60% of our share of its approximately 100,000 ton capacity, is expected to be fully utilized by 1973. The 300,000 ton hot mill, which has been severely under-utilized since its start-up in 1967, is now approaching economic loading levels. Given the low operating costs associated with these facilities, we can anticipate an improvement in the profitability of our German fabricating operation in the near future.<sup>26</sup>

In Japan, Alcan is unique among the international aluminum companies. It has both a 50% equity position in the largest

smelting company, Nippon Light Metal, as well as in Toyo Aluminum, the largest foil roller and converter in Japan. Nippon Light Metal accounts for about 30% of primary smelter capacity in Japan, and in turn has extensive fabricating interests through subsidiary and related companies.

In essence, the post-1958 Alcan investment strategy has been to develop and promote markets for its aluminum in the major industrialized nations of the world, with much of the primary aluminum coming from its Canadian smelters, which in turn draw their bauxite and alumina largely from Alcan's mining operations in the Third World. Table A-1 shows Alcan's revenues by product, and demonstrates the increasing importance of the fabricated products category. A list of Alcan's fabricating interests in 33 countries, and the products collectively produced by them is shown in Exhibits A-3 and A-4. Alcan's bauxite mining and smelting interests are listed in Exhibit A-5.

There are, however, recent exceptions to this pattern of investment; namely, investments made by Alcan which are not attributable to the requirements of their Canadian operations. For example, in India, Brazil, and more recently, Australia, Alcan has participated in the establishment of fully integrated domestic aluminum industries (selfcontained ingot and fabricating systems). These countries possess bauxite, power and a domestic market sufficiently large to make such projects viable. Moreover, the national industrial policies of these countries, e.g., foreign exchange and foreign investment restrictions, discourage the importation of metal from abroad and limit the type of international business arrangements which firms such as Alcan may negotiate with the governments and/or domestic enterprises in these host countries.<sup>27</sup>

Alcan's current participation in the establishment and reorganization of vertically integrated domestic aluminum industries

signals the emergence of a new, the "third", corporate strategy. The first strategy centered around the expansion of Alcan's smelter facilities in Canada and its role as a producer's producer. The second corporate strategy, initiated in 1958, saw Alcan integrate vertically forward into fabrication and thus promote and develop markets for its aluminum output with Alcan Canada being a critical component in the system. As for the "third" strategy, Alcan's investment need not be directly related to the needs of Alcan Canada. Instead such investments may be of strategic and economic value to the over-all competitiveness of Alcan as a multinational enterprise in the international aluminum industry.

In the context of the "third" strategy, Alcan

...plans contemplate a growing portion of Canadian smelter production staying in North America to satisfy the metal requirements of the local fabricating and sales operations, into which, in the case of the United States especially, we have put a great deal of effort and money during the last six years. The Canadian smelters will also remain as a supply source for marginal metal requirements elsewhere in the world, whether they be in South America, Europe, Asia or elsewhere.<sup>28</sup>

Future benefits to Canada from Alcan's overseas (non-North America) operations should increasingly take the form of repatriated profits realized from the earnings of Alcan's overseas subsidiaries and related companies, and from fees received for the provision of corporate infrastructure services such as technology transfer, procurement and transportation services, and general management assistance and training.



## THE CORPORATE STRUCTURE

The corporate strategy answers the questions of what is our business, what should it be and what will it be? The corporate structure, on the other hand, is the design of the organization which carries out those key tasks or activities necessary to realize the goals of the strategy. In the words of A.D. Chandler,

Structure can be defined as the design of organization through which the enterprise is administered. This design, whether formally or informally defined, has two aspects. It includes, first, the lines of authority and communication between the different administrative offices and officers, and, second, the information and data that flow through these lines of communication and authority. Such lines and such data are essential to assure the effective coordination, appraisal, and planning so necessary in carrying out the basic goals and policies and in knitting together the total resources of the enterprise.<sup>29</sup>

Structure follows strategy; however, it is not mechanical, it cannot be prefabricated, and it tends to be organic and unique to each individual enterprise.<sup>30</sup> Difficulties are encountered when one attempts to relate structure to performance because performance is a mix of many factors involving corporate decisions in such areas as profit, risk and growth. Nonetheless, "the data suggest that a match between strategy and structure gives a firm a slight advantage over others in which the characteristics of the structure are not well tailored to the managers' needs".<sup>31</sup>

In many cases when corporate strategies are altered, as opposed to merely being modified, time delays of 20 to 30 years or more may occur with respect to their impact on the corporate structure (organization).<sup>32</sup> The lack of action in changing the corporate structure has usually a behavioral causation. Corporate executives may be unaware of the new demands which the change in

strategy will impose on the existing structure. A more reasonable explanation is that these executives may be unwilling to effect a change in the structure because of their own involvement in any such change.

The unwillingness to act decisively and on time results often from one's own personal position in the organization, power and psychological security requirements.<sup>33</sup> This problem is more apparent in closely knit organizations, companies which are family-owned and/or -managed, and operating in a single product line industry. Alcan reflected these attributes, and while it may be difficult to document with precision the extent to which these attributes influenced the time delays between strategy formulation and structure implementation, their existence and influence cannot be denied.

The change in strategy which most commonly demands a change in structure includes a combination of key decisions such as to expand the volume of business, to increase the geographical coverage, to enter into new functions by vertically integrating backwards and/or forwards, and by diversifying into new end uses for the product line. These factors were evident when Alcan unveiled its 1958 strategy, i.e., to invest heavily into fabrication. Moreover, these factors acquire additional significance because Alcan is both large and multinational in its operations and activities.

Before and after unveiling the 1958 structure, four key external pressures were collectively influencing the evolution of Alcan's structure to become more international and less Canadian (e.g., domestic) in its orientation. In other words, these forces prompted Alcan to assign greater economic and strategic value to its non-Canadian operations and activities.

The first external pressure is the expansion of corporate

foreign sales from exporting domestically (Canadian) manufactured goods to producing locally abroad. Tariffs, quotas, taxes, capital repatriation requirements, transportation and procurement economies, labor costs and relations with foreign governments are some of the reasons for establishing foreign mining, smelting and manufacturing units. Alcan's decision to invest in a specific country and the nature of the organization it establishes (e.g., wholly owned, minority-owned, or joint-venture) is conditioned by the foregoing considerations. In turn, the effect of undertaking production and marketing abroad forces corporate headquarters to adjust its structural design because there is the added task of coordinating and controlling the domestic policies and procedures for products manufactured by home and foreign plants. In the case of Alcan, because of its many overseas subsidiaries and the hybrid nature of their ownership arrangements, questions of quality control, transfer of technology, timing of the introduction of new products, international marketing, planning and rationalization of production on a continental (North American) and regional (EEC) basis are of particular importance to corporate management.

The second external pressure, often running parallel with the first, sees the geographical dispersion of company sales on a global basis. In this instance, the parent company becomes more dependent on the earnings realized from the sales of its foreign subsidiaries. This is certainly the case with Alcan. Companies that find themselves in this situation will try to design structures which offer flexibility so that parent management may quickly shift its resources in a way that it can meet competitive challenges in any single or series of markets.

The third external pressure usually arises from increasing foreign market penetration through the successful domestic performance of the company's foreign subsidiaries. This is the



technological pressure. International rationalization of manufacturing coupled with international marketing planning will force the corporation to have a structure to facilitate the transfer of technology. In the case of Alcan, for example, it operates three large research centres located in Arvida, Quebec, Kingston, Ontario, and Banbury, England. The Arvida centre concerns itself primarily with products, production efficiency and processes in the raw materials, chemical and smelting fields. Although the Arvida research centre is situated in Canada and largely staffed by Canadians, the research programs support not only the Canadian operations but also include service contracts with Alcan's operations and affiliate smelters and bauxite and alumina operations in such countries as the U.K., Australia, Brazil, Spain, Sweden and India. The Kingston and Banbury research centres handle the fabricating research, and between these two laboratories they provide technical assistance for the Alcan group of companies on a geographical basis. Thus, the structural design used in transferring the technology between the various subsidiaries of the corporation, without losing control of it, becomes a major concern for corporate management.

Finally, there are government pressures emanating from parent and host governments which affect the structure of companies. These pressures include government legislation, formal statements of policy guidelines, and informal contacts with the companies, which involve moral suasion. Different laws and policies towards direct foreign investment in the countries of the world make it virtually impossible for any company to pursue a uniform policy regarding structural arrangements between the parent and its foreign subsidiaries. For example, in the case of Alcan, there exists a wholly owned subsidiary in the United States (Alcancorp), a 50/50 joint-venture with a publicly owned Japanese firm in



Japan (Nippon Light Metal Company), and a minority position in a local fabricator of aluminum in South Africa (Hulett's Aluminium Limited). In many instances, Alcan is in partnership with government-owned enterprises such as in Norway, Spain, Brazil, Guinea and Nigeria. To cope with the organizational relations between Alcan's head office and its many and varied foreign subsidiaries requires a structure which exhibits a high degree of control and flexibility.

The design of corporate strategies and organizational structures are among the key areas of decision-making in business organizations.<sup>34</sup> This is particularly so for a firm like Alcan, because complex problems of suboptimization arise and are always present in multinational enterprises. In the case of a multinational firm such as Alcan, problems of suboptimization result not only from conflicting pressures emanating from parent company and its foreign affiliate, but from parent company and host country. For example, cost considerations may suggest that inputs of a subsidiary company should be made through imports. However, this procedure may conflict with the host country's desire to promote local industry. This was the case with Alcan's former nationalized subsidiary in Guyana, Demba, which continued to import a raw material, flour, at a time when the government of Guyana argued that Alcan should have sourced a substitute material locally, cassava starch, however uneconomical. Similar experiences are being encountered by other Alcan subsidiaries, particularly in third world countries, e.g., Jamaica and Mexico. Many multinational enterprises, thus, argue that the functions of planning, coordination, and control must reside at the center to prevent management of the subsidiaries from pursuing strategies and responding to governmental pressures in a way that would tend to suboptimize the corporate goals of the firm.

It is common to see formal and informal changes taking place in a corporate structure; however, major reorganizations are the exception rather than the rule. In terms of Alcan's contemporary corporate history, 1968 was the year of a major reorganization. For this reason our examination of Alcan's structures will be divided between the pre-1968, 1968 and post 1968 periods.

#### PRE-1968 CORPORATE STRUCTURE

In March 1960, corporate management devoted an entire issue of its company publication, Compass, to describing Alcan's pattern of organization. It recognized that "there is no last word" in such a document since corporate growth causes change, and present management practices require modification to reflect the nature of the change.<sup>35</sup> The philosophy underlying Alcan's structure was "the attainment of the advantages of centralization where desirable and, at the same time and in proper balance, the advantages of decentralization".<sup>36</sup> The decision to go into fabrication in 1958 meant that Alcan, the headquarters company, would have to concern itself with financing and managing this program of vertical integration. At the same time, corporate management recognized the diversity and geographical dispersion of its worldwide operations which demanded a degree of decentralization.

To achieve a proper balance between centralization and decentralization of management authority and responsibility, four types of "Alcan designed companies" were grouped under the Alcan headquarters organization which was structured along functional lines. These companies included the following: (1) operating companies; (2) international trading companies; (3) service companies; and (4) promotional companies.

The commitment to decentralization was reflected in the mandate assigned to the operating companies.

To operate smelters and manufacturing plants as decentralized, separate and largely autonomous companies generally incorporated in the country of operation, to achieve their own customer acceptance in their home markets, public approval of their affairs, and profitable results; and to benefit from such decentralization through the stimulus to individual motivation and the making of decisions nearest to the source of problems.<sup>37</sup>

In order to avoid the "rigidities" which appear to afflict formal structures, Alcan defined its concept of "positional responsibility" within the structure of Alcan's group of companies as follows:

It merely means that an opportunity to further the group's interests by means of one's fortuitous geographical location must not be neglected on account of momentary inability to put the responsibility where it belongs according to the pattern of organization.<sup>38</sup>

The goals of centralization were served by five bodies or groups: (1) Aluminium Limited; (2) the Board of Directors of Aluminium Limited; (3) the five service companies (otherwise known as allotropic companies); (4) the Director of Operations; and (5) the three "co-ordination centers". For example, the administration of Alcan's interest in and concern for its investments rested principally in the hands of the five service companies, each having its own area of corporate responsibility.<sup>39</sup>

1. Alcan International

- a) sales
- b) responsible for the International Trading companies
- c) develops policies of controlled (>50%) operating companies concerning
  - (i) customs and tariffs,
  - (ii) purchases and sales of ingots and ingot products,
  - (iii) trademarks.

2. Aluminium Fiduciaries

- a) employee relations
- b) employee information
- c) provide slate of candidates for executive positions.

3. Aluminum Laboratories

- a) technique and engineering
- b) acquiring, disposing of and protecting ore reserves
- c) process and product research
- d) development and direction of technique
- e) acquisition and protection of patents and trademarks

4. Aluminium Secretariat

- a) corporate procedure
- b) legal and secretarial practice
- c) public, shareholder and government relations

5. Aluminium Securities

- a) banking
- b) budgeting and forecasting
- c) credit collection
- d) marketing securities
- e) foreign exchange
- f) office systems
- g) auditing
- h) investment appraisals

Each of the service companies was headed by a president who also held the dual position of vice president in the corresponding function in Alcan--sales, personnel, research and engineering, legal and corporate procedures and public affairs, and finance. The service companies extended their services on a contractual basis to the operating companies for an "appropriate remuneration" to ensure that the financial accounts of the operating companies would "reflect the cost of their operations".<sup>40</sup>

The director of operations was a position without authority over operating companies; a paradoxical position that served the centralization theme but emphasized the decentralized nature of operations. In the words of corporate management,

One of the fundamental concepts in our pattern of organization is that operating companies...are completely autonomous in the field of operations. ...The chief executive officer and staffs of operating companies have sole responsibility for the successful conduct of their operations. It follows, therefore, that the Director of Operations and his staff have no responsibility for the operations of the companies...The responsibility of the Director of Operations is limited to knowing sufficiently about the operations of the underlying companies to be able to report fully



thereon to the management of Aluminum Limited. The delegation runs from the management of Aluminum Limited to the Director of Operations and stops there.<sup>41</sup>

While the director of operations was primarily an advisory position, it was not in the individual operating unit's interests to ignore his advice. His role appeared to be that of a logistical and general operational coordinator. This same decentralization within centralization theme was also apparent in the case of the service companies whose "authority is largely the authority of knowledge".<sup>42</sup>

Finally, the "coordinating centers" coincident with the originally mentioned "promotional companies", were rather strange creations (Allim: London, Allim: Geneva, and Allim: New York). These coordinating centers were established on the rationale that certain projects "if they are left to the individual responsibility of the allotropic (service) companies"<sup>43</sup> might prove to be offensive to some part of the Aluminum Limited Group of companies.

When such instances arise, as determined by a sorting process which goes on in the consultative session (Group Management meeting), the coordination centres become eligible to become, after a formal mandate, new courts of jurisdiction in which the responsibilities of all the allotropic companies are merged under a new non partisan chief executive.<sup>44</sup>

These centers were further directed to:

...keep informed of all development significant in their areas, inform management of investment opportunities in their areas, and help keep the relationship between other management companies and the operating companies functioning smoothly and effectively.<sup>45</sup>

The promotional companies were viewed primarily as "listening

posts" with an eye to new investment opportunities. Their responsibility ran directly to the president of Alcan, though their working relationships were primarily with the service companies.

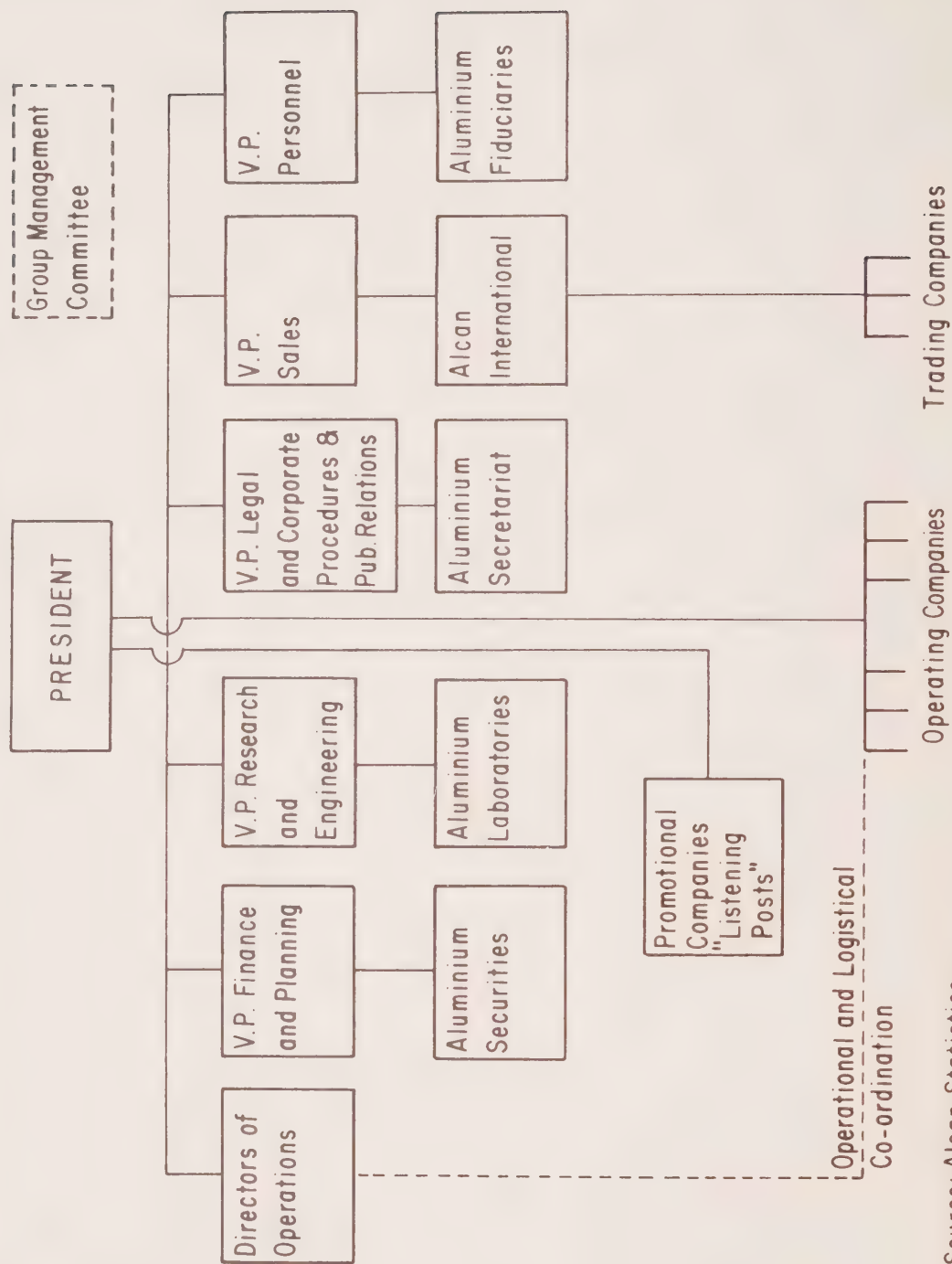
The basic structure of Aluminum Limited throughout the late fifties and early sixties is sketched in Exhibit 4. Group Management Committee meetings, called "consultative sessions" were chaired by the president of Aluminum Limited and attended by the vice presidents, both in their functional capacity and as presidents of service companies, and, where necessary, by promotional and operating company members. The Committee was problem-solving rather than planning-oriented. The absence of a formalized planning cycle is conspicuous. Financial control was exercised through the necessity for "Requesting for Clearance of Appropriation" for nonoperating expenditures (i.e., capital expenditures) exceeding \$25,000.<sup>46</sup> This applied to investments as well as disinvestments. The normal procedure was to submit the request to "Securities", which in turn circulated it to the other service companies for formal endorsement. The endorsement of the service company into whose area of functional competence the proposed capital expenditure fell was required before the appropriation could be approved.<sup>47</sup>

Alcan's attempt to balance the principles of decentralization and centralization through the fifties and early sixties caused organizational stress and strain. An overview of these problems can be gleaned from the following excerpt which appeared in the Economist soon after the unveiling of Alcan's new organizational structure:

Thus over some 10 years the character of Alcan has been transformed. It has integrated forwards. It has diversified geographically. But it is no secret at the group's Montreal headquarters that group organization failed to keep pace with these changes.

# Exhibit 4

## Aluminium Limited Corporate Structure in the 1950's and early 1960's



Source: Alcan Statistics

Traditionally Alcan has believed in decentralization. Each overseas subsidiary has (or had) a manager, who reported direct to the president in Montreal, Mr. Nathanael Davis; while the functional directors of the subsidiaries, in turn, reported to functional vice presidents in Montreal. But in time the virtue became a vice. Mr. Davis had 33 companies reporting to him directly. And it became generally agreed that tighter control was needed over capital spending by the subsidiaries.<sup>48</sup>

In retrospect, concepts such as "positional responsibility" and the ambiguous role of the "promotional companies" were bound to create some confusion. The lack of a formalized planning cycle, or positions or bodies free to take the long range view (the Group Management Committee was largely problem oriented), compounded the problems in the structure, especially at a time when a new strategy was being implemented in the market place.

#### THE 1968 REORGANIZATION

On January 1, 1968, Nathanael V. Davis announced a company reorganization pointing to factors of absolute size, geographical diversity, and increased vertical integration as the prime considerations. President Davis saw the need for reorganization as a result of internal and external pressures:

Not only had the company itself changed--from essentially a basic metal manufacturer to increasingly, a leading producer of semi-fabricated and finished products--but so had the world in which it lived. Communications were faster, markets were different, competition was intensified.<sup>49</sup>

The new structure was designed by corporate management with the assistance of McKinsey and Company, Inc., a leading U.S. management consulting firm. Though significant, the move was by



no means path-breaking, nor were the circumstances leading to it unique to Alcan. As a Harvard University study points out, of a surveyed 170 U.S. multinational companies, by 1968 only eight had not made this or similar moves.<sup>50</sup> The basic characteristic of reorganization was to move from a highly centralized staff - functional to a more decentralized product line structure, with line responsibilities for three of the four executive vice presidents (raw materials, smelting, and fabricating and sales). See Exhibit 5.

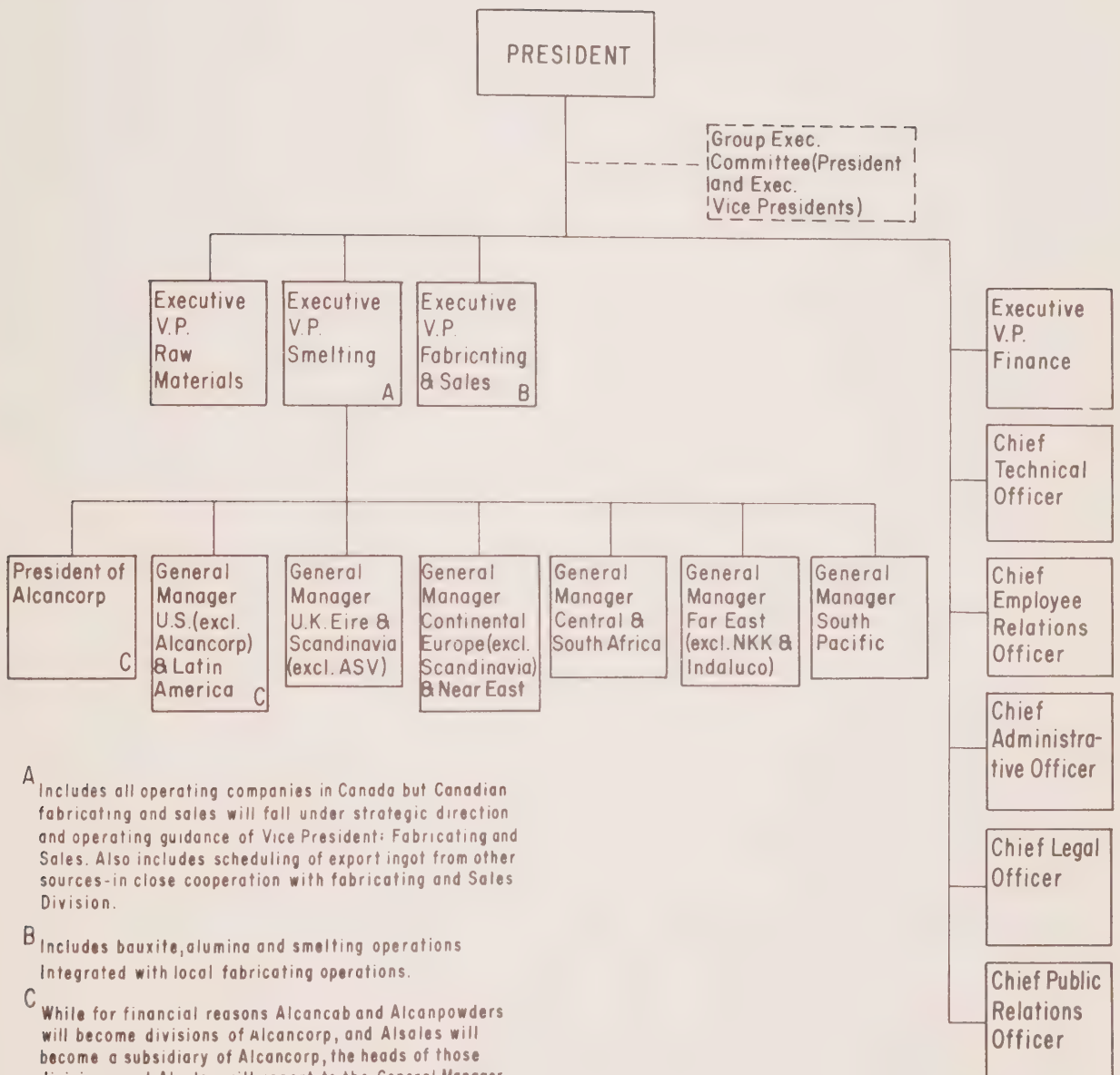
...a divisional organization balanced by staff support supersedes the existing group management structure. Division of company operations into three logical line units and creation of a five-man executive committee to direct their activities constitutes the chief departure from current administrative practices. Integrated with them are the headquarters staff services. These will continue to be provided by four service companies - now with more emphasis on responsibility for the formulation and, after approval by the president, promulgation of basic policies to govern group activities within their respective functional areas.<sup>51</sup>

Under the 1968 structure, operating companies reported to the executive vice presidents in charge of the various divisions, and no longer directly to the president. The structural reorganization was inaugurated with the usual objectives of control, coordination, communication, and direction in mind:

In addition to providing closer line supervision of the operation of the Group's companies, this new organization structure should help distinguish better between line and staff authorities and responsibilities, making it clear that the chief executive officer of each operating or sales company is accountable only to one person--his vice president or area manager, as the case may be. It should also foster closer direction and co-ordination in planning, and help in stressing the evaluation of

Exhibit 5

ALCAN ALUMINIUM LIMITED  
Group Organization Chart



Source: Alcan Statistics

individual and company performance against these plans.<sup>52</sup>

Besides the creation of line (product) divisions, each operating as a separate profit center under its own corporate title, two further developments were of particular significance: (a) the creation of area managers in the Fabricating and Sales Division (the company's largest); and (b) the formation of a "group" executive committee".

The new line divisions with operating units reporting to vice presidents or area managers points to a significant move towards decentralization. The pre-1968 functional structure was suitable for a large organization concerned with the production and sale of pig aluminum, involving relatively simple strategies. In such a structure, "it was perfectly feasible for the key functional men in the organization to gather around the president's conference table and make the major decisions".<sup>53</sup> However,

...as the cross-functional decisions inside an organization have grown in number, the practice of generating these decisions at the top of the pyramid has become untenable.<sup>54</sup>

In essence, "the president and his vice presidents become bottlenecks in the decision-making process", and in the case of Alcan, it prompted the company to subordinate the functional organization to a product structure. Nevertheless, to minimize the potential of experiencing the "bottleneck" problem in the new structure, the roles of the president and executive vice presidents were redefined. The former's job description embodied a long-range orientation, while the latter's job took on a short-range perspective. The president's long-range orientation was echoed in the following job description:

1. "developing overall group objectives and strategy,"
2. "directing the group's top-level external relationships,"
3. "selecting and appraising key executives."<sup>55</sup>

On the other hand, the executive vice president's role was primarily to,

...establish and co-ordinate within the framework of overall group policies, objectives and strategies, those policies, objectives and strategies to be followed by their respective divisions.<sup>56</sup>

The different time horizons of the president and his executive vice presidents "can cause problems for the coordination of the overall effect".<sup>57</sup> The conventional solution to this problem is the creation of headquarters staff groups to act as information processors and conflict resolvers.<sup>58</sup> This fact was recognized in Alcan's 1968 reorganization. A second device was brought into play to reduce the problem of coordination--the "group executive committee". This committee, consisting of the president and the four executive vice presidents, was to "play a vital role in planning and coordinating the Group's activities in the different divisions".<sup>59</sup> The primary functions were described as follows:

1. Developing Group objectives, strategies, and priorities based on evaluation of the various alternatives available against the framework of the Group's capital and personnel resources;
2. Reviewing objectives and strategies proposed for each major operating unit from an overall management standpoint to satisfy itself that these are soundly based and not in conflict with the activities or plans of other divisions;
3. Reviewing progress within the divisions and discussing other matters arising outside or inside the Group that are of material interest to the Group;
4. Reviewing major capital investment proposals that, because of their size, would create a substantial drain on the financial or personnel resources available to pursue other opportunities, or would affect the operations of other divisions (e.g., the effect on Alcan Canada of the installation by fabricating companies of remelt facilities);



5. Evaluating policies recommended by the Montreal service companies when requested to do so by the president;
6. Reviewing changes in bauxite, alumina and ingot production rates proposed by the vice presidents of the raw materials and smelting divisions;
7. Reviewing transfer prices between divisions used for purposes of profitability reports prepared by securities.<sup>60</sup>

The role of the president and his line executives is differentiated through time as well as through space, the president being concerned with evaluating opportunities between rather than within divisions. A significant aspect of the "group executive committee's" role as coordinating and control agent was its position as final arbiter in the annual planning cycle with regard to overall company strategy.

This new structure, with emphasis on responsibility for operations devolving upon the executive vice presidents, freed the president to engage in longer range planning (by being replaced by the line executive vice presidents as responsibility centre for the individual operating units). He was supported by a group executive committee whose explicit function was to take a longer range and interdivisional (i.e., company-wide) view, rather than operate on an "ad hoc" basis. The planning function was further formalized in divisional planning committees and through the adoption of an annual planning cycle--all of which were conspicuously absent in the previous structure.

The executive vice president of each line operating division was also president of the dominant Alcan company in the division: raw materials (Alcan Ore Limited); smelting (Alcan Canada) and fabricating/sales (Alcanint). The vice presidents within the divisional company are structured functionally, e.g., along the

lines of finance, sales, operations, marketing, research, etc. In effect, they formed the staff group of the divisional company. As in Alcan as a whole, differences in time horizons and coordinating problems were met by both staff groups and planning committees. As for the senior executives of operating companies, they were responsible directly to the corresponding line executive vice president. In the case of fabricating and sales, area managers form an intermediate link in this chain of command, i.e., top executives of operating companies were responsible to area managers who were in turn responsible to their divisional executive vice president.

As a result of the 1968 reorganization, Alcan Canada was both the largest of Alcan's operating subsidiaries and its smelting division. Its expanded responsibilities included the following: supplying the fabricating and sales division with most of its ingot product requirements; functioning as the Group repository of knowledge regarding existing and potential company smelter capacity, smelter construction, and smelting techniques, practices and costs; and advising and assisting in the engineering of additional smelting facilities outside of Canada, as well as on operating problems and performances.<sup>61</sup> In the new structure, Alcan Canada was the "link-in-the-middle of Alcan's triple-link chain", for it bought its bauxite and alumina from the raw materials division and sold its metals to or through the fabricating/sales division.

Corporate management, however, emphasized that the establishment of the smelting division did not mean that Alcan Canada's operations in Canada would change, at least in the short run. For example, Alcan Canada would be responsible for the Group's Canadian smelter, power and alumina plants; for the administration of the Group's export metal pool; for the Group's fabricating and sales operations in Canada, but under the strategic guidance of the

fabricating/sales division; and for the Group's other subsidiaries operating in Canada except Sagships and Magcan.<sup>62</sup>

The sharing of common facilities was a major reason for combining the Canadian fabricating and sales operations with the alumina operations under the aegis of Alcan Canada. This made Alcan Canada different from Alcan's non-Canadian Group companies. Another reason for allowing this exception was "because the Group's Canadian operations can best be represented before the Canadian government, industry, and public under one vice president of Alcan".<sup>63</sup>

#### THE CONTROL MECHANISM

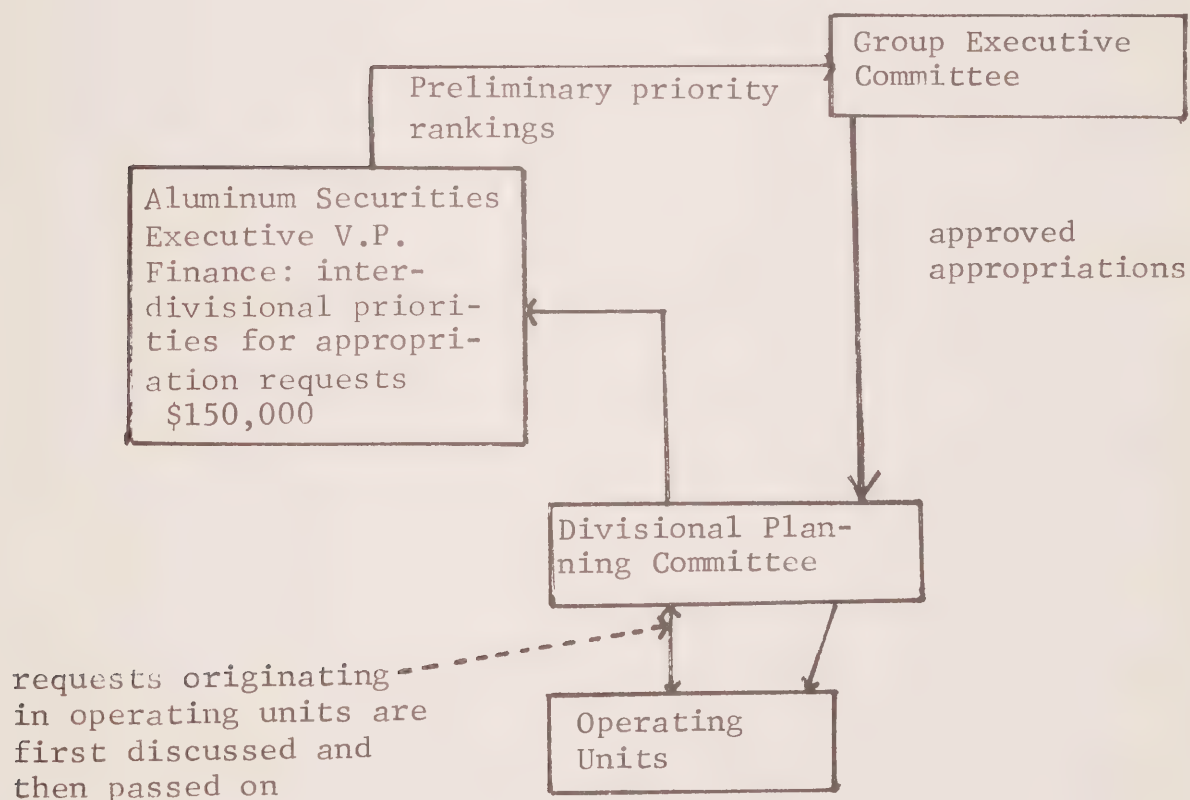
Four service companies were given the responsibility of providing specialized support for the activities of the Group. These service units were to work with one another, as well as with the three divisions. As in the pre-1968 organization, the heads of the service units occupied dual positions; namely, president of the service company, and senior headquarters staff officer responsible for a functional area of activity, reporting directly to the President of Alcan. The service company, and the dual position of the executive is listed below:

<u>Service Company</u>	<u>Alcan Appointment</u>
President, Aluminium Securities Ltd.	Executive Vice-President, Finance
President, Aluminium Laboratories Ltd.	Chief Technical Officer
President, Aluminium Fiduciaries Ltd.	Chief Employee Relations Officer
President, Aluminium Secretariat, Ltd. (includes legal affairs and public relations)	Chief Administrative Officer

The role of the executive vice president of finance in the formulation of overall company objectives and allocation of company resources cannot be overemphasized. His influence extended beyond the group executive committee, and was made possible by the financial control mechanism employed by Alcan in which all "Requests for Appropriations" exceeding \$150,000 must eventually pass through Aluminium Securities (see Exhibit 6). The control at the company-wide level through the group executive committee was replicated at the divisional level by the planning committees, headed by the respective executive vice presidents.

#### EXHIBIT 6

##### THE CONTROL - PLANNING PROCESS



Source: Alcan Publications



The organization of each division and the company as a whole presented ample room for exercise of vertical communication, coordination and control. A great deal of horizontal communication existed as well, since this is inherent in the supplier-supplied relationships between the divisions representing elements of a vertically integrated structure. It also stems from the fact that divisions such as fabricating and sales did not entirely lose their functional nature, and that the geographical organization of this division (area managers) cuts across product lines. In sum, Alcan's 1968 organizational structure was a hybrid of different forms. At first blush Alcan International (the fabricating and sales division) would appear to be an "international division" of the company in the traditional sense. Other divisions, though, shared responsibility for worldwide operations. On the other hand, the structure was not entirely "geocentric" (worldwide), particularly when one considers the smelting division. There were elements of both quasi-autonomy and central control and coordination within Alcan's organizational structure. It would appear that the de facto nature of the company will depend very much on current management philosophies. Within the 1968 structure, a change in management personnel and/or orientation could change the nature of the entire firm, i.e., within limits, the 1968 structure appeared flexible enough to contain a certain range of strategies.

This flexibility was recognized by President Davis when he introduced "...the new course upon which Alcan embarks in 1968. As it has in the past, as it is in the present, so it will in the future continue to develop those refinements of structure and working relationships demanded of any enterprise adjusting to a continually changing environment".<sup>64</sup>

## POST-1968 ORGANIZATIONAL CHANGES

Competition induces structural change,<sup>65</sup> and Alcan's organizational form was designed to be flexible enough for management to meet the challenges in the market place and in the corporate organization. The following are a number of the key changes implemented since 1968.

1. On February 9, 1972, N.V. Davis was elected chairman of the board, and chief executive officer of Alcan; and Mr. Paul H. Leman, president of Alcan Canada was elected to succeed Davis as president of Alcan. This new arrangement is expected to provide for a better distribution of the "heavy responsibilities at the top". Apart from allowing the sharing of corporate-wide and long-range planning functions, the two positions become interchangeable to some degree, i.e., while one senior executive is absent, the other is able to fill his position in the interim.

The fusion of the two positions of president of Alcan and Alcan Canada meant that the smelting division lost control over Alcan Canada. Two critical reasons were offered for this change: first, the Alcan Canada group of companies straddled all three line divisions and thereby functioned more as a financial and legal unit, rather than as "a management one"; and, second, Alcan Canada should not maintain a headquarters organization separate from that of Alcan.<sup>66</sup>

2. On January 25, 1973, the smelting and raw materials line divisions were amalgamated. It was argued that economic interdependence and use of common process technology meant that the amalgamation made economic, managerial and technical sense. Undoubtedly, the loss of Alcan Canada by the smelting division was a forerunner to the decision to integrate the two line divisions.

3. As a result of studies conducted in late 1969 and early

1970, numerous changes were introduced in the staff support organization at Alcan headquarters in Montreal. For example, a planning coordinator was appointed in 1971, and attached to the president's office. Though planning was recognized in 1968, the new coordinator was responsible for ensuring that the plan embodied broader considerations than those associated largely with financial factors.

Marketing inputs from the fabricating and sales division have come to play a more direct role in the formal planning mechanism. This broader planning scope is embodied in the corporate "Mainline Study", designed to evolve planning parameters, which is the responsibility of the planning coordinator. The "Mainline Study" is a collation of inputs of various kinds from various division and staff groups: financial guidelines, economic forecasts, marketing plans, evaluation of political climates, overall corporate strategy, etc. This "Mainline Study" is then utilized by the operating divisions and their operating units as a planning guideline. Nevertheless, in this planning cycle, the executive vice president of finance still plays a crucial role, for he must translate and consolidate divisional plans into specific financial proposals for discussion by the group executive committee.

Of the other changes in the service group of companies, two are of particular significance since both point towards greater decentralization of authority and responsibility. First, the research and development facilities were placed within the line division rather than the service company.<sup>67</sup> Second, requests for appropriation need now be made only for capital expenditures exceeding \$500,000 rather than \$150,000. Smaller amounts may be approved by the divisional executive vice presidents. These and other changes initiated in 1970-1971 signaled the real possibility that the various service companies would in time disappear as separate entities.

## A GEOGRAPHIC STRUCTURE

Eight years after the introduction of the divisional (product) structure, Mr. Davis, chairman and chief executive officer of Alcan, announced another major company reorganization. The impact of "fast moving change in the social, political and economic environment for all business, and especially for multinational corporations such as Alcan", was the reason given for redesigning the present structure. The major weaknesses of the existing structure were identified as follows: the heavy responsibilities of the Executive Committee which still preoccupied itself with both planning and strategy, as well as daily operating problems; the size and complexity of the fabricating/sales division; the working relationships with certain partially owned subsidiaries; the difficulties associated with managing research and development policy; and, above all, "the need to strengthen Aluminium Company of Canada, Ltd. as a cohesive corporate entity, to integrate more closely its management with that of its North American and Caribbean subsidiaries, and to improve its profitability and finance-ability as the largest operating structure in the Alcan Group".

After careful study and examination of the existing structure, the Alcan board of directors accepted the following concepts and organizational provisions:

(a) Continued delegation to the areas and operating companies of those matters best handled on a local basis.

(b) Retain the benefits of the area line organization but with allocation of responsibility at the Executive Committee level on a geographical rather than on the former divisional basis.

(c) Create a Corporate Development Committee to concentrate on strategic planning and on continuing review of Group objectives and guidelines associated with longer range issues.

(d) Make the Executive Committee responsible mainly for operational decisions, short-range planning and for the implementation of the objectives and strategies established by the Corporate Development Committee.



(e) Strengthen the availability of area and regional expertise at Head Office and improve the two-way flow of communications between the areas and Head Office.

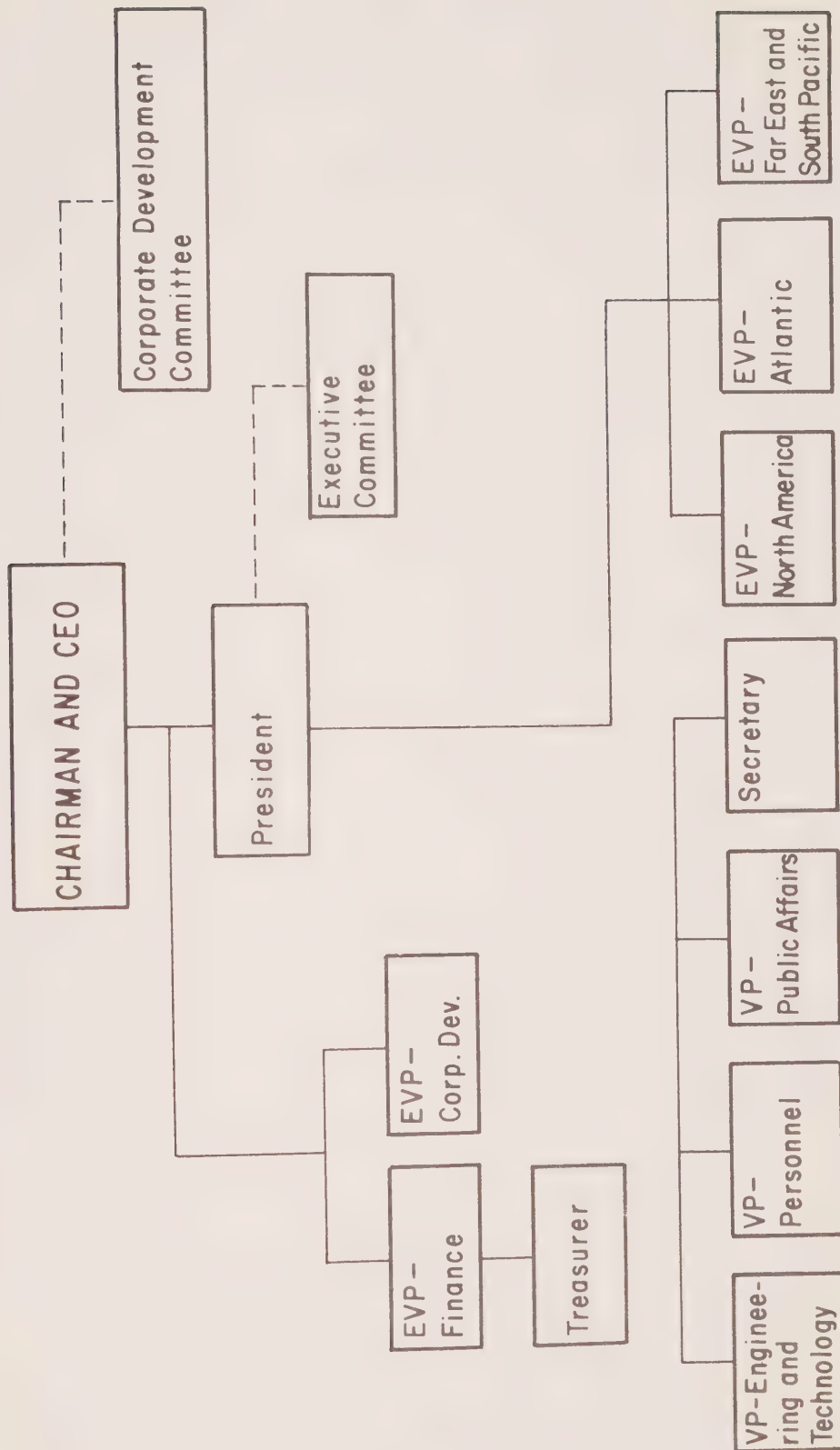
(f) Improve the top management direction of R and D activity and identification of its needs.

On June 1, 1975, an announcement was made of the initial design of the new Alcan corporate structure (see Exhibit 7). The company's basic organization now consists of three geographically defined operating regions, two management committees, and a number of service (staff) units. Each region--one comprising Canada, the United States and the Caribbean; another the Far East (including Japan and India) and the South Pacific (including Australia and New Zealand); and the third, Continental Europe, the United Kingdom, Africa, and Latin America--is headed by a regional executive vice president. These officers are responsible from Montreal for the efficient and profitable ongoing, development and growth of all the Alcan operations falling within their respective territories. Supporting them are ten area general managers in various parts of the world.

Also at head office in Montreal are two key committees. The corporate development committee, headed by Alcan's chairman and chief executive officer, concentrates on strategic planning and on continuing review of Group objectives associated with longer-range issues. The executive committee, chaired by the president, is responsible for operational decisions, short-range planning, and implementation of the objectives and strategies established by the corporate development committee. Completing the organization of Alcan at head office are a number of staff units. Their role is to provide service and coordination, in their areas of specialization, to the management committees, to regional headquarters and to all Alcan operating companies.

# Exhibit 7

## Alcan - The 1975 Corporate Structure



Source: Alcan Statistics

Mr. Davis emphasized that

This reorganization should be regarded as part of a natural evolutionary process of improvement and adaptation and should not be interpreted as a radical departure in Alcan's objectives nor in the nature of its business. Our objective still remains to employ Alcan's strength and its experienced personnel to build a better aluminum business.

The evolving nature of Alcan's structure confirms the findings of a study conducted on large U.S. corporations at Harvard University. Alcan can be described as a large dominant firm that derives the bulk of its sales from a single business or a vertically integrated chain of businesses. A single business is "one that manufactures and distributes a single product, a line of products with variations in size and style, or a set of closely related products linked by technology or market structure".<sup>69</sup> These dominant firms tend to employ a corporate structure in which senior management controls all key decisions by having the staff units organized along functional lines, and the line units along product divisions.<sup>70</sup> This was the pattern of organization employed by Alcan until 1975. The current hybrid structure retains the staff functional pattern, but replaces the product division with a geographic line structure. This change, however, will not alter the pattern of decision-making; namely, that the key decisions will be made by, and monitored from, headquarters in Montreal.

# 4

## CORPORATE IMPACT ON CANADA

### INTRODUCTION

In 1968, the 100 largest companies in manufacturing, mining, and logging in Canada accounted for 44% of total value of shipments and 34% of total employment in these sectors.<sup>1</sup> Within this group of 100, Alcan alone accounted for 6% of shipments and 4% of employment. Consequently, it is not unreasonable to assume that the decisions of Alcan's management may have had a significant impact on resource allocation in the Canadian economy, on the lives of its 20,000 employees and their dependents, and on the lives of many other Canadians who have been influenced by this corporation's decisions. The purpose of this chapter is to discuss some of these impacts.

A number of themes have been identified in the foregoing discussion of Alcan's development to date. First, the company originated from American entrepreneurial activity and its subsequent American connection has been sustained, although altered in a number of ways. Second, the company's development has taken place within the context of an international industry populated with a small number of large vertically integrated companies. This industry has a long history of international cartel agreements, formed often due to the strong underlying competitive forces that exist in this industry between producers of a homogeneous product, and between aluminum and substitute materials.<sup>2</sup> Third, Alcan has grown substantially in size and geographically to become recognized as a major multinational corporation. However, growth has taken the form of backward and forward integration within the aluminum industry, both domestically and abroad, and



not through product diversification. And fourth, there has been a considerable restructuring of the corporation organizationally in recent years, although key decisions have remained with an identifiable group of individuals.

Given these facts about Alcan, the question that arises is how to assess the impact of the company on Canada. The relevant literature on this topic is both extensive and diverse, but it does not provide a single conceptual framework to employ, when the impact has economic, political, legal and social dimensions. A useful starting point is the economic literature in the field of industrial organization, which deals with an evaluation of the nature and determinants of industry performance. In the present case, our concern is with a firm, not an industry. However, within the Canadian market, Alcan can almost be equated with the aluminum smelting industry since there is only one other smelting firm in Canada--Reynolds Aluminum Company of Canada Ltd., located at Baie Comeau, Quebec. Alcan has about 85% of Canadian smelter capacity compared to 15% for Reynolds. In 1975, Canadian consumption of aluminum in all forms was approximately 320,000 tons: Alcan accounted for approximately 68% of this total, Reynolds for about 20% and the remaining 12% by imports and secondary aluminum. The primary aluminum receives further fabrication by firms such as Canada Wire and Cable, Northern Electric, Daymond, Indal, Zimcor, Chrysler, Phillips and Pirelli. Part of the aluminum consumed was imported by Alcan through intracorporate trade.

Using an industrial organization framework, an examination of the impact of Alcan can be made in terms of its performance, its conduct and its structure. The last issue, structure, requires elaboration. An examination can be made both of the structural characteristics of the market in which Alcan operates, and of the organizational structure and strategy of the firm.

Since Alcan is large absolutely, as well as relative to its markets, the structure and strategy of the firm itself may influence its performance. A branch of the literature on industrial organization has dealt with this topic in terms of examining the efficiency with which large corporations channel investment into new areas (the literature on conglomerate firms)<sup>3</sup> and the efficiency with which decisions are reached in large organizations and their relationship to the organizational structure of the firm.

In this study, one approach to examining the impact of Alcan on Canada will follow what has been described in the literature as the economizing mode. A second approach, the sociologizing mode, intended to fill in the gaps left by the economizing mode research will also be used as a complementary way of commenting on Alcan's impact. The two modes have been discussed as follows:

Economizing is the Science of the best allocation of scarce resources among competing ends: it is the essential technique for the reduction of "waste" - as this is measured by the calculus stipulated by the regnant accounting technique. The conditions of economizing are a market mechanism as the arbiter of allocation, and a fluid price system which is responsive to the shifting patterns of supply and demand.<sup>4</sup>

Profitability and productivity, thus, are the indices of corporate success. They are the tests of meeting the demands of the market place and the demand for the efficient distribution of resources within the firm and between members of the society. This is the rationale for the economizing mode for the corporation, as for the economy.<sup>5</sup>

A second writer extends and elaborates on the performance criteria as follows:

The significance of the economic choices that are made by the powerful large firm can be summed up in terms of their effects on the achievement of four basic economic goals: efficiency, stability, progressiveness, and equity. Economic efficiency means producing the most of what consumers want with available supplies of resources. It involves not only the idea of technical efficiency--for example, performing any particular technical operation with the cheapest combination of inputs required for a unit of output--but the more subtle idea of not producing less of any one particular good in relation to others, and conversely, more of another, than consumers' desires indicate.

Stability of output and employment at high levels, and, perhaps a little less important, of price levels, is an economic goal which is generally given great weight. The exercise of pricing discretion can contribute to destabilizing forces both in upswings and downswings of activity.<sup>6</sup>

Critics of the economizing mode argue that the corporation has wider impacts that must be assessed. The general approach taken is that the corporation must be viewed as a social rather than as a private enterprise and that it has a responsibility for a broader set of constituents and issues than the owners and profitability of the corporation. Professor Bell has noted:

Important as all these issues are, they do not go to the heart of the matter, which is that the economizing mode is based on the proposition that individual satisfaction is the unit in which costs and benefits are to be reckoned. This is an atomistic view of society and reflects the utilitarian fallacy that the sum total of individual decisions is equivalent to a social decision. Yet the aggregate of individual decisions has collective effects far beyond the power of any individual to manage, and which often vitiate the individual's desires.

In effect, in contrast to the economizing mode of thought, one can specify--I apologize for the heavy-handed clumsiness--a sociologizing mode, or the effort to judge a society's needs in more conscious fashion, and (to use an old-fashioned terminology) to do so on the basis of some explicit conception of the 'public interest'.<sup>7</sup>

The following examination of Alcan's impact on Canada will involve use of both the narrower economic framework and the wider socio-political framework. An assessment of Alcan in either the economizing or sociologizing mode identifies the issues, but not the corporation. As previously described, Alcan is a large multinational corporation which, in concrete terms, means that it operates through subsidiary and affiliated companies in a number of different countries. The holding company for this operation is Alcan Aluminium Ltd. (Alcan) which has subsidiary and related companies in over 40 countries. Financial statements are available for Alcan Aluminium Ltd. (Alcan) on its own, and for Alcan consolidated with its subsidiary companies. In 1975, Alcan's consolidated balance sheet reported assets of \$3,012 million. Alcan's principal investment is 100% ownership of Alcan Canada, thus public common equity ownership is possible in Alcan but not in Alcan Canada.

Alcan's consolidated revenues in 1975 were \$2.3 billion resulting from \$0.4 billion sales of aluminum ingot, \$1.4 billion of fabricated aluminum products and \$0.5 billion of other products, mainly alumina and chemicals, and operating revenues. Total aluminum sold was 1,402,000 tons: 617,000 tons of ingot and 785,000 tons of fabricated products.<sup>8</sup> Total aluminum smelted by Alcan's consolidated subsidiaries was 1,134,000 tons, of which Alcan Canada produced 838,000 tons from Canadian smelters in Quebec and British Columbia. Sixty-four per cent of this Canadian production was absorbed in North America (U.S. 38% and Canada 26%).

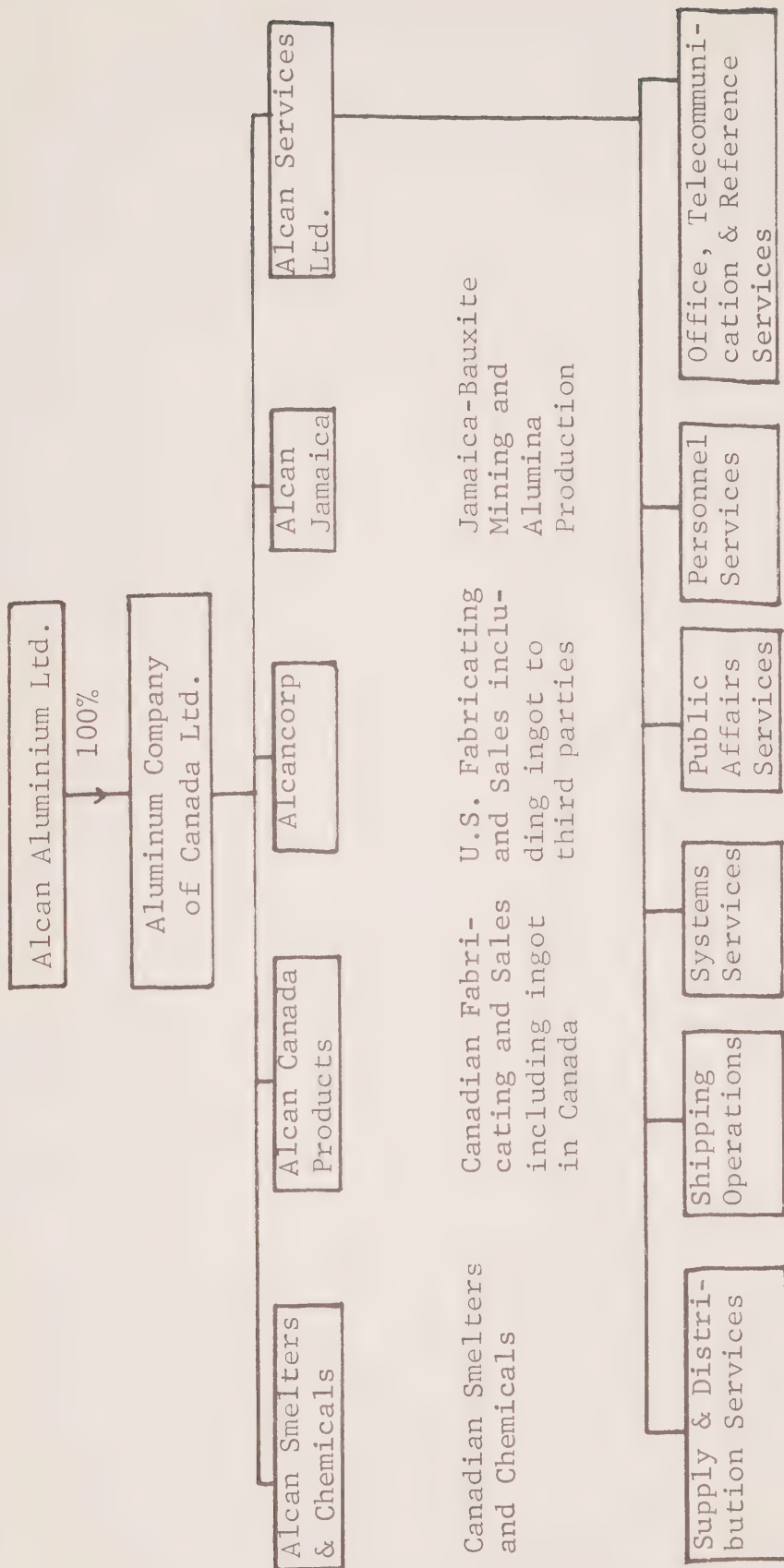


Although Alcan overall is more forward integrated into fabrication than in earlier years, in line with its corporate strategy, the Canadian operations of Alcan Canada still emphasize the supply of primary metal of which only about 20% is absorbed by the company's Canadian fabricating operations and independent customers.

Under the 1975 structural reorganization of Alcan, the company has been divided into three regional divisions (see Chapter 3). Alcan Canada is positioned in the Canada, U.S. and Caribbean division, and Mr. Culver is president and chief executive officer of Alcan Canada, as well as regional executive vice president of Alcan. The principal subsidiaries of Alcan Canada are shown in Exhibit 8. Alcan Canada and its consolidated subsidiaries in 1975 accounted for 57% of the total assets, 61% of total sales revenue, 2%<sup>9</sup> of total net income and 74% of ingot production of Alcan's consolidated subsidiaries. Thus, in terms of aluminum production, assets and sales, Alcan Canada, as the principal operating subsidiary of Alcan, is the most important operation on which to focus in terms of impact on Canada. However, because some of Alcan Canada's subsidiaries operate outside of Canada --Exhibit 8--data reported on a corporate basis do not coincide with national boundaries, so that care has to be exercised when judging Canadian impact.

# EXHIBIT 8

## ALCAN CANADA - CANADA, U.S.A. AND CARIBBEAN REGION, 1976



Source: Alcan Publications

## THE ECONOMIZING MODE

An economic analysis of Alcan addresses itself to issues of profitability, productivity and progressiveness. These issues can be examined in terms of Alcan, because it is a public company for which information is available, whereas Alcan Canada is a wholly owned subsidiary, albeit the major component of the overall company. As previously mentioned, corporate boundaries do not coincide with national boundaries so that impact on Canada cannot be accurately determined. Moreover, the following discussion is based on financial statements which in a period of inflation tend to distort real performance, although comparisons are made with companies that have been exposed to similar North American inflationary conditions, i.e., Alcoa, Kaiser and Reynolds.<sup>10</sup>

### ALCAN'S CORPORATE PERFORMANCE

Alcan together with the three major North American aluminum companies, Alcoa, Kaiser and Reynolds, account for about 60% of North American smelting capacity. Some comparative characteristics of these four companies are presented in Table 8, prior to comparing their performance in recent years.

Alcan and Alcoa are the most comparable firms as far as total assets, total sales, and low degree of diversification outside aluminum is concerned. However, Alcan operates with about 20% more employees than Alcoa and is less integrated forwards into fabricated aluminum products. Kaiser and Reynolds are of similar size in terms of assets and sales, but Reynolds has almost 50% more employees than Kaiser, and Kaiser is far more diversified outside of aluminum. The best standard of comparison for Alcan is therefore Alcoa as far as corporate performance is concerned.

TABLE 8

COMPARATIVE STATISTICS OF FOUR MAJOR  
NORTH AMERICAN ALUMINUM COMPANIES, 1974-75

Company	Total Employees	Total Assets (\$mil.)	Total Sales (\$mil.)	Fabr. Alumi.		Ingot Prod.		Alumina		Other	
				%		%		%		%	
				Total Sales	Total Sales	Total Sales	Total Sales	Total Sales	Total Sales	Total Sales	Total Sales
				(Total)	(Total)	(Total)	(Total)	(Total)	(Total)	(Total)	(Total)
				(mil.)	(mil.)	(mil.)	(mil.)	(mil.)	(mil.)	(mil.)	(mil.)
ALCAN	61,000	3,012	2301.5	1370.0	60	441.0	19	419.0	18	72.0	3
ALCOA	50,151	3,198	2727.3	1938.0	71	245.0	9	461.0	17	83.0	3
KAISER	23,261	2,102	1578.1	-----	-----	1021.6	65	-----	-----	556.1	35
REYNOLDS	33,400	2,204	1679.3	1310.8	78	164.2	10			204.3	12

Source: Investors Management Sciences Inc., Standard & Poor's.



Although the four major North American aluminum producers are not identical in their size, degree of diversification and degree of integration, it is useful to compare the financial performance and related characteristics of Alcan with the three other companies based on averages for the most recent five years (see Table 9).

During the last five years, Alcan has been less profitable than either Alcoa or Kaiser, but more profitable than Reynolds in terms of after-tax return on common equity (line 17). However, Alcan has been the most profitable in terms of after-tax return on invested capital (debt plus equity--line 16). Alcan has had a substantially higher debt/equity relationship (54/46) than Alcoa (48/52) but lower than Kaiser and Reynolds (line 13), thus Alcoa stands in the best position for future financing based on this criterion. In addition, Reynolds and Alcoa have higher current ratios (line 12) than Alcan.

Alcan's cost of goods sold as a per cent of sales (line 1) is higher than for Alcoa, but lower than for Kaiser and Reynolds, but Alcan's selling and administrative expenses as a per cent of sales (line 4) are lowest of all the companies. Alcoa has the highest pension and retirement expense as a per cent of sales (line 3), and Alcan the lowest. In the area of research and development (line 5) it is notable that Alcan has devoted the least relative effort, and only one-third of Alcoa's effort. The overall result is that Alcan places third in terms of net income as a per cent of sales (line 6), ahead only of Reynolds. Alcan ranks fourth in sales per employee, third in pretax income per employee and fourth in average invested capital per employee (lines 7,8,9). In recent years, Alcoa's capital expenditures have been significantly greater than Alcan's (line 15).

A closer comparison between Alcan and Alcoa reveals that over

TABLE 9  
COMPARATIVE PERFORMANCE OF FOUR MAJOR NORTH  
AMERICAN ALUMINUM COMPANIES, AVERAGES FOR 1971-75

	<u>Alcan</u>	<u>Alcoa</u> <sup>5</sup>	<u>Kaiser</u>	<u>Reynolds</u>
1. Cost of goods sold as % total sales	76.84	73.40	79.38	80.18
2. Total labor and related expense as % total sales	N.A.	34.12	N.A.	35.80
3. Pension and retirement expense as % total sales	1.02	1.92	1.24	1.82
4. Selling, general and ad- ministrative expense as % total sales	7.68	8.68	8.10	8.70
5. Research and development expense as % total sales	0.7	2.1 <sup>6</sup>	0.92	1.0
6. Net income as % total sales	3.92	5.66	4.00	2.56
7. Sales per employee (\$thousand)	30,750.8	40,489.6	52,031.4	40,624.8
8. Pre-tax income per employee (\$mil)	1,959.4	3,589.6	3,439.4	1,773.2
9. Average invested capital per employee (\$mil) <sup>1</sup>	32,777.6	51,334.6	57,891.4	49,078.6
10. Net plant (\$mil) <sup>2</sup>	1,277.8	1,541.4	816.8	1,023.6
11. Total invested capital (\$mil) <sup>1</sup>	2,082.4	2,470.4	1,475.0	1,798.0
12. Current ratio	2.04	2.88	1.68	2.96
13. Common equity (book value) (as % total in- vested capital)	46.2	52.4	42.6	37.2
14. Price earnings ratio range (high and low)	19.2 - 12.2	16.4 - 9.4	19.6 - 10.0	4.2 - <sup>7</sup> 2.2
15. Capital expenditures (\$mil)	153.18	226.08	74.86	97.32

TABLE 9  
(continued)

	<u>Alcan</u>	<u>Alcoa</u>	<u>Kaiser</u>	<u>Reynolds</u>
16. After tax return on average invested capital <sup>3</sup>	6.72%	6.06%	6.26%	3.80% <sup>8</sup>
17. After tax return on average common equity <sup>4</sup>	7.82%	8.42%	8.40%	6.02%

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Notes to Table 9

<sup>1</sup>Includes long term debt, minority interest, preferred stock, deferred taxes, investment tax credit and common equity: excludes current liabilities, contingent liabilities and reserves.

<sup>2</sup>Original cost of fixed property less accumulated depreciation.

<sup>3</sup>Net income excluding extraordinary items and discontinued operations net of taxes plus minority interest plus fixed charges less income taxes applicable to fixed charges divided by average invested capital.

<sup>4</sup>Available for common excluding extraordinary items and discontinued operations divided by average common equity.

<sup>5</sup>1970-1974

<sup>6</sup>1971-1974

<sup>7</sup>1973-1975

<sup>8</sup>1972-1975

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Source: Investors Management Services Inc., Standard & Poor's

a longer span of time, 1956 to 1974, the profitability (line 17) of Alcan and Alcoa are almost identical, being 9.2% and 9.0% respectively. In terms of other characteristics in Table 9, Alcan has a higher debt/equity ratio, lower current ratio and significantly lower capital, income and sales per employee, and lower net income as a per cent of sales than Alcoa. This suggests that Alcan is not in as favorable a position to raise new financing, especially equity financing, and has a lower level of labor productivity than Alcoa. Alcan's sales per employee are 25% lower than Alcoa's, and it is therefore more vulnerable to wage increases than Alcoa. Part of the difference in labor productivity is due to the fact that Alcan's invested capital per employee is 37% lower than Alcoa. This situation has not been remedied to date by new investment since Alcan's annual capital expenditures are 32% lower than Alcoa, and Alcan is devoting less resources to research and development. In June 1976, Alcan Aluminium Ltd. made an offering of 5 million additional common shares in order to raise capital for expansion in Canada: 2.5 million shares are being offered in Canada at C\$25.95 and 2.5 million in the United States at U.S.\$26.75. It should be noted that intercompany financial performance comparisons are subject to difficulties: for example, of the four companies, Alcan has the least unfunded pension liabilities; its labor productivity is affected by the location of its operations in developing (labor intensive) countries; and the scale of the domestic market in which Alcan operates is about one-tenth the size of Alcoa's domestic market.

A further evaluation can be made by comparing Alcan's performance to Standard & Poor's index of 425 industrial companies. From 1961 to 1974, Alcan's after-tax return on equity has been 76.6% of the index representing the 425 companies. However, this standard of performance characterizes the aluminum industry as a



whole, since Alcoa's return on equity is 70.0%, Kaiser is 85.9% and Reynolds' 59.3% of the index. In sum, two situations prevail: first, the aluminum industry does not perform well by these measures, and second, within the industry Alcan has a return on equity similar to Alcoa but a lower level of labor productivity, and devotes less resources to improving productivity in terms of expenditure on research and development.

Part of the explanation for this situation may be found in research conducted by Professor B.R. Scott of Harvard, who has examined the performance of large companies in relation to their corporate strategies and organizational structures. Alcan and Alcoa would be characterized as "dominant verticals"--or firms which are vertically integrated, but which derive their revenues almost entirely from one product line. Dominant verticals are noted for their low level of performance:

In the case of the dominant verticals, one is at once inclined to ask this question: How and why have they stayed so long with such low-performance strategies?

My guess is that most of these companies are aware that they have a low-performance strategy; but they have realized this too late, and they now find it extremely difficult to diversify. They have let themselves stay too long with the one-industry strategy and are now trapped by the results of it. If anything, their performance in the 1970s is likely to look even further below average than in the past.

Most of these companies are in mature industries, characterized by slow growth in demand, high economies of scale, chronic overcapacity, and low profits. Some, such as steel, were mature before World War II. Some of the newer material processors joined the ranks of low performers more recently, such as the aluminum companies. All these industries are characterized by commodity products and sensitivity to price. Hence a low-cost position is vitally important.

In addition, marginal additions to plant appear attractive; these companies must invest in plant to stay in the game and to keep bringing costs down. This goes on until overcapacity and dumping bring down the earnings for the whole industry group.

At the same time, if the management of a dominant vertical tries to diversify, it faces a dilemma. It has little by way of transferable skills; hence any area is likely to be "new", and therefore difficult.

Further, a dominant vertical needs to make big commitments in new fields if it is to diversify as much as 30% of its sales. Yet any high-growth, high-profit industry is likely to be populated by higher-profit companies which command higher price/earnings ratios in the stock market. To acquire for stock would further dilute earnings. To acquire for cash would cause problems for the cash-hungry principal business of the company.

In short, these companies cannot move easily via either cash or stock acquisitions.

Thus, these companies remain as they are, not from choice but because escape is difficult. Judging from our field research, and even from the annual reports we have read from these companies, my colleagues and I have concluded that a good many dominant-vertical managements realize their dilemma. They know they have a low-performance strategy and they are trying to do something about it.<sup>11</sup>

The performance of the aluminum industry has been confirmed by the President of Alcoa who noted that, measured by return on net worth, the combined results of the three major U.S. aluminum producers in 1971 and 1972 were the lowest of any of the 40 manufacturing groups, covering more than 2,000 leading companies,<sup>12</sup> reported by the First National City Bank.

Professor Scott's reasoning may help to explain the poor performance of the aluminum industry as a whole, but it does not

explain Alcan's weak productivity performance. Alcan's strength lies in its access to cheap hydroelectric power, while its vulnerability lies in the size of the Canadian market, which has meant that it is dependent on conditions in export markets, especially in industrialized countries where other producers have integrated forward into fabrication earlier than Alcan. The company thus remained too long as primarily a supplier of aluminum ingot, and pursued a strategy of integration into fabrication after its major competitors.

Ultimately, the explanation of Alcan's performance rests with determining why senior corporate management implemented the corporate strategy at the time it did, while other aluminum companies acted sooner to integrate forwards into fabrication. One explanation is that it was simply a misjudgment by management. A second possible explanation is associated with Judge Knox's concern in 1950 that Alcan, despite the 1928 organizational separation from Alcoa, might remain an ingot supplier to Alcoa. The role of ingot supplier did persist after 1950, so that the historical antecedents of Alcan may have led the company to pursue this strategy longer than the other companies.

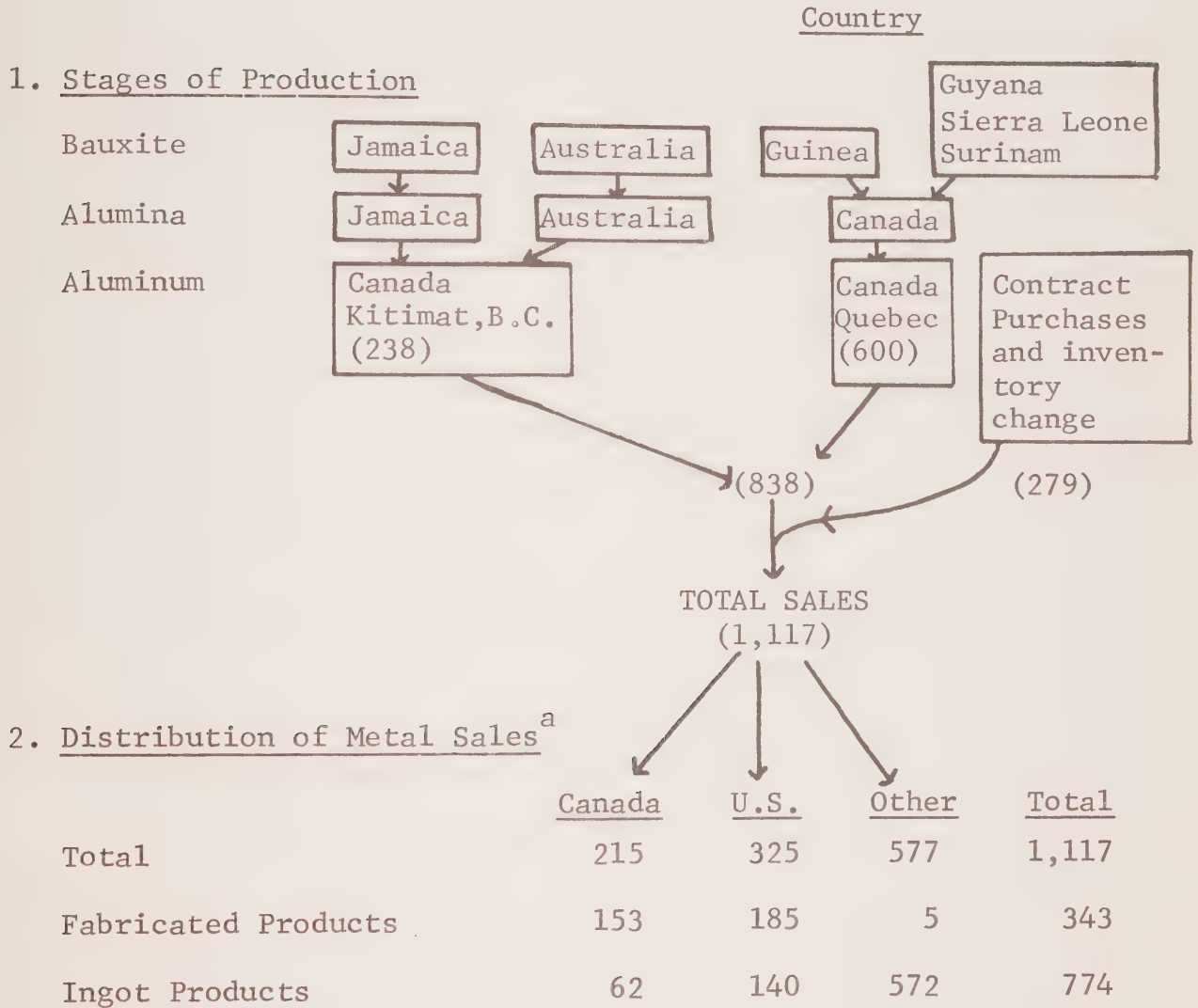
#### EVALUATION OF ALCAN CANADA

Alcan Canada's after-tax return on shareholders' equity averaged 5.26% for the period 1971 to 1975. This return included payments to preferred and common shares, where the latter were all held by Alcan, the holding company. An examination of Alcan Canada's operations is necessary because it is this corporation which owns and operates the assets in Canada which have a major impact on Canada. As well, it has been noted that Alcan Canada owns assets outside of Canada. A flow chart (Exhibit 9) identifies the relationships between the stages of production and the

# EXHIBIT 9

## PRINCIPAL INPUTS FOR AND OUTPUTS OF ALCAN CANADA'S SMELTERS BY COUNTRY, 1975

(000 short tons)



<sup>a</sup>These data are in part estimates because of intracompany sales.

Source: Alcan Reports.



positions of Canada and other countries based on Alcan Canada's 1975 production of 838,000 tons of aluminum in its Quebec and B.C. smelters, and sales of 1,117,000 tons of aluminum. It should be noted that the stages of production involve Alcan Canada in interfirm and intrafirm arrangements.

The Canadian smelters were supplied with bauxite and alumina from Jamaica (Aljam, a subsidiary of Alcan Canada), Australia and Guinea (where Alcan has part interest in companies) and from purchases from Guyana, Sierra Leone and Surinam. Alcan Canada's Kitimat smelter imports alumina, while at Arvida, bauxite is imported and processed into alumina on site. The metal produced in the two smelters is supplemented by contract purchases, so that Alcan Canada's total metal sales exceed its Canadian smelter output. Metal tonnage was sold approximately 69% as ingot products and 31% as fabricated products in 1975: the latter are sold almost entirely in North America by Alcan Canada's wholly owned fabricating subsidiaries, Alcanproducts in Canada and Alcancorp in the U.S.

As previously noted, Alcan Canada is a vertically integrated company providing either directly or from affiliated companies 70% of its bauxite needs, 90% of its alumina and 70% of its fluorspar. In addition, it supplies its own power and the principal chemicals required in the production of alumina and aluminum, and its owns fabricating capacity in Canada and the United States which represents about 65% of its smelting capacity. In total, Alcan Canada purchases about \$300 million of Canadian goods and services and pays about \$250 million to its 20,000 employees in Canada. Exhibit 9 illustrates the vertically integrated strategy of Alcan as implemented through its principal operating subsidiary, Alcan Canada.

## Production and Sales

There are four key aspects of Alcan Canada's aluminum production operations in Canada that should be noted, the smelters, hydroelectricity, chemicals and corporate infrastructures--see Exhibit 8. First, the smelter operations are divided between five plants which vary in terms of age of equipment, production process, capacity and location. The company operates smelters which range in capacity from 440,000 to 51,000 tons per annum. Two smelting processes are utilized, the Prebake and the Soderberg processes. In new plants and where replacement takes place, the Prebake process is used as being the more efficient smelting process and preferable for environmental reasons. Current plant economies of scale suggest that minimum optimum size for a smelter is reached at 100,000 tons per annum (i.e., lowest output where average costs are minimized).

Perhaps one of the most important features of an aluminum smelter is no great penalty in terms of average cost of production for constructing a plant of smaller than optimal size. The average cost of production of a 20,000-ton plant is only 10 per cent greater than that of a 100,000-ton plant.<sup>13</sup>

An existing plant can be operated at less than minimum optimum size, both because much of the capital has been fully depreciated and because average costs of production may not be that much higher for a smaller plant. In Canada, any disadvantage of a smaller plant will be offset at least in part by access to cheaper energy sources relative to plants in other countries. According to the 100,000-ton figure, about 75% of Alcan Canada's smelter capacity is in plants of minimum optimum size or above.

As new plants are built in Canada, they will incorporate the Prebake process and will tend to be large. For example, Alcan

Canada announced in April 1976 plans to build a new smelter at Port Alfred, Quebec of 200,000 tons capacity costing \$450 million. However, the smelter will be built in three 63,000-ton modules, each costing in excess of \$100 million.<sup>14</sup> New investment can also be undertaken by adding pot lines (for smelting aluminum) to smelters already in existence: a pot line is a unit that can be closed down when smelting needs to be cut back.<sup>15</sup> In sum, the efficiency of both existing and future capacity depends on size, type of process, age of equipment and whether corporate infrastructure, e.g., power and transportation, is already in existence or has to be built. In Canada, Alcan Canada's investment in smelters will take the form of modernizing existing plants, adding pot lines to existing plants and building new plants.

The second key aspect to production is access to cheap energy. Here, Alcan Canada has a major competitive advantage over most competing firms outside of Canada in that it owns its hydroelectric power, and this power is cheap relative to power generally available to many competing producers. Existing ownership of power will permit a significant expansion of smelter capacity. An industry analyst noted in 1973:

We estimate that Alcan's present power cost in Canada is about 1.25 mills per kwh versus an average of 5 mills per kwh in the U.S. and 7-10 mills per kwh in Europe and Japan. Expressed in terms of cost per pound of metal produced, it is 1¢ for Alcan, 4¢ for U.S. producers and 6¢- 8¢ for European and Japanese producers. Energy costs for new smelters around the world will probably be much higher than the current average. If one projects inflationary cost trends to increase by only 4% annually through 1990, industry energy costs could rise by 81%. In Alcan's case, we expect energy costs to decline by 56% to something on the order of 0.5 mills per kwh or 0.4¢ per pound of aluminum produced. The costs for competitive metal could be

5¢ or 12¢ per pound more at even the most efficient plants, assuming power costs of 9-18 mills per kwh.<sup>16</sup>

This competitive advantage has increased since 1973 so much so that hydroelectricity may be viewed as the jewel in Alcan's crown. The founders of Alcoa recognized this, as have more recently provincial governments, especially the government of Quebec. Alcan feels that this analysis, made in 1973, fails to take into account the financial and overhead charges associated with Alcan's capital investment in power facilities. Furthermore, the suggested decline in future power costs is unlikely in view of inflationary pressure on operating and maintenance expenses.

Thirdly, aluminum production requires chemicals which are produced largely in plants owned by Alcan Canada in Quebec. The major purchased inputs for production, besides bauxite, alumina, and power are thus inputs for chemical production. Alcan Canada possesses expertise in chemical production as well as in aluminum production, by virtue of the fact that it operates one of Canada's largest inorganic chemical complexes at Jonquière, Quebec.

Finally, any large mineral processing operation requires a sophisticated corporate infrastructure, especially with respect to the provision of transportation services. In Canada, Alcan Canada's transportation system involves port facilities at Kitimat and Port Alfred for the receipt of bauxite and alumina, and for the export of metal, mainly in chartered vessels;<sup>17</sup> two railways in Quebec for transshipment from Port Alfred to Arvida; and extensive use of trucking services. As will be seen below, expertise in the provision of transportation services has been developed to the point where the company sells consulting services with respect to transportation.

In sum, an examination of the critical aspects of Alcan Canada's



smelter operations in Canada shows that the impact on Canada on the input side spreads out from the actual smelting process to power generation, chemical production and transportation infrastructure--see Exhibit 10. These activities show the ways in which the strategy of Alcan has had an impact on the Canadian economy. They also show that a large company will possess a complex organizational structure even if its output is not diversified and is based principally on one commodity, aluminum. While part of the organization is not footloose and must be located physically in Canada, other parts, especially the head office functions, can be located in different places.

The smelter output of aluminum ingot is sold to third parties in Canada, to Alcan Canada's fabricating plants in Canada and in the United States, and to third parties in the United States and abroad through company-owned sales offices. Ingot and fabricated sales in Canada correspond to 26% of Canadian smelter output: exports correspond to the balance of 74%. Over 50% of Canadian ingot is sold to affiliated companies of Alcan Canada mainly in Canada and the U.S. Total sales of Alcan Canada are distributed about 22% in Canada, 35% in the U.S. and 43% elsewhere.

#### Canada and Quebec Impact

The economic contribution of Alcan Canada to Canada and Quebec is shown in Tables 10 and 11 for the period 1966-75. One way to view the impact is to consider that one organization in Canada has been directly responsible for the livelihood of a city the size of Sherbrooke when the total number of employees and dependents of Alcan Canada are aggregated. In Quebec, the company is responsible for the livelihood of a city the size of Lachine. In addition, there are the indirect employment benefits arising

## EXHIBIT 10

### CANADIAN OPERATIONS OF ALCAN CANADA, (1974)

1. Employment                      20,000 persons  
    Annual Payroll                      \$249 million
2. Smelter Operations  
    Nos. of Smelters                      5 (Quebec - 4; B.C. - 1)  
    Total annual capacity                      985,000 tons

<u>Location</u>	<u>Type*</u>	<u>Annual Capacity</u>
(1) Arvida	14 H.S.	315
Arvida	5 P.B.	125
(2) Isle Maligne	3 H.S.	83
Isle Maligne	1 V.S.	25
(3) Shawinigan	4 H.S.	91
(4) Beauharnois	2 H.S.	51
(5) Kitimat	6½ V.S.	295
		<hr/>
		985
		<hr/>

\*H.S. - Horizontal Soderberg line

V.S. - Vertical Soderberg line

P.B. - Prebake line

Operating rate in 1975:      79% of capacity

3. Alumina Operations  
    Two plants at Arvida with a total capacity of 1.4 million tons of alumina. Production in 1975: 1.2 million tons.

4. Inputs  
    (a) Major inputs required for smelting and alumina operations besides bauxite/alumina include fluorspar, supplied by company-owned mine in Newfoundland, petroleum coke, caustic soda and cryolite.

#### Chemical Production by Company in 1974

Alumina Hydrate	1,387,000	short tons
Alumina Calcined	1,190,000	"
Fluorspar	100,000	"
Sulphuric Acid	160,000	"
Aluminum Fluoride	62,000	"
Cryolite	27,000	"

EXHIBIT 10

(continued)

Caustic Soda	50,000 short tons
Aluminum Sulphate*	
- Arvida	40,000 "
- Shawinigan	27,000 "
- Ottawa	27,000

\*Not an input: sold to third party customers

Chemical sales (1974): \$22 million

Employment in chemical operations: 1800 (1700 in Saguenay region)

(b) Purchase of Canadian goods and services \$296M

5. Power

7 power stations (6 in Quebec and 1 in B.C.)

Installed generating capacity:	Quebec	2.7m KW
	B.C.	0.9m KW
	Total	3.6m KW

6. Fabricating Operations

Canada - Alcanproducts

Employment:	5,000
Sales (1974):	\$370 million
Plants:	27

Capacity by Product and Region

	<u>Quebec</u>	<u>Rest of Canada</u>	<u>Total Canada (tons)</u>
Sheet and Plate	-	123,000	123,000
Coiled reroll stock	100,000	-	100,000
Extrusions	7,000	51,500	58,500
Foil	1,000	21,000	22,000
Rod and Bar	121,000	14,000	135,000
Wire and Cable	24,000	24,000	48,000
Powder and Alpaste	7,000	-	7,000

## EXHIBIT 10

(continued)

### 7. Other Facilities

(a) Research Centres - two with approximately 425 employees  
Arvida, P.Q. - concerned with raw materials,  
chemicals and smelting -  
250 employees

Kingston, Ontario - concerned with alloying, fabrica-  
ting processes and product applica-  
tions - 175 employees

In addition, major plants have their own technical staffs.

Expenditure on R & D: \$19.4 million in 1975 by Alcan group

(b) Transportation facilities  
- ports in B.C. and Quebec  
- 2 railways in Quebec

(c) Sales Offices

### 8. Principal foreign operations of Alcan Canada

(a) Jamaica (Aljam) -- 2 alumina plants with 1.2 million ton  
capacity; port facilities

(b) U.S. (Alcancorp)-- 9 plants plus 40 other operations in-  
cluding service centres and warehouses  
Capacity - 290,000 tons.

### 9. Distribution of Canadian Sales %

Exports	78
To affiliated companies	36
To third parties	42
Domestic	22
To affiliated companies	16.5
To third parties	5.5
Total	100

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Source: Aluminum Company of Canada, Ltd., Prospectus 1975, Wood  
Gundy, Form 10-K for Alcan and Alcan Canada and company  
documents.



TABLE 10

ALUMINUM COMPANY OF CANADA, LTD.  
CANADIAN ECONOMIC CONTRIBUTION, 1966-1975

Year	Sales Revenue \$ Million	Sales Volume		Pro- duction Ingot	Number of Em- ployees	Salaries & Wages		Pur- chases <sup>2</sup>	Taxes	Divi- dends	In- terest	Fixed Capital	
		Ingot	Fabricated Products									Expenditures Smelter	"TAB"
		----- (000 short tons) -----											
1966	466	403	131	789	19,256	131		127	38	N.A.	19	50.5	N.A.
1967	489	777	122	878	19,569	142		127	37	18	23	24.0	N.A.
1968	529	876	122	871	18,421	142		90	58	17	26	9.4	3.7
1969	611	998	124	969	18,643	161		114	64	19	28	19.5	17.4
1970	571 <sup>1</sup>	927	143	903	19,546	166		129	37	20	29	17.6	19.8
1971	589 <sup>1</sup>	981	164	945	18,275	169		136	22	10	34	16.8	5.9
1972	576 <sup>1</sup>	965	164	881	17,514	170		149	14	20	34	19.4	5.8
1973	689 <sup>1</sup>	1083	163	872	18,805	205		181	25	16	38	36.6	6.9
1974	997 <sup>1</sup>	1041	195	962	20,571	249		297	46	19	50	104.4	17.3
1975	987 <sup>1</sup>	913	157	838	18,911	257		292	35	15	55	69.4	13.8

<sup>1</sup>U.S. \$<sup>2</sup>Canadian purchases cover all payments made to firms where the invoice originates in Canada in Canadian funds and include freight payments on incoming materials.

Source: Company Publications.

TABLE 11

ALUMINUM COMPANY OF CANADA, LTD.  
QUEBEC ECONOMIC CONTRIBUTION, 1966-1975

Sales Revenue in Quebec				Produc- tion of Ingot	Fabricated Product Sales	Number of Em- ployees	Salaries & Wages	Pur- chases	Taxes	Divi- dends	Fixed Capital	
Year	Total	Ingot	Fabri- cated Products								Expenditures Smelter	"FAB"
	-----(\$ Million)-----			---(000 short tons)---		-----(\$ Million)-----						
1966	46	10	36	554	50	13,112	91	73	13	N.A.	36.9	N.A.
1967	36	8	28	619	39	12,914	97	73	13	7	15.2	N.A.
1968	29	11	28	604	38	11,962	94	51	13	7	6.5	.1
1969	41	8	33	676	38	12,087	109	64	17	7	16.3	3.6
1970	55	8	47	715	53	12,612	111	72	13	7	16.3	8.6
1971	67	10	57	675	64	11,316	102	76	12	7	13.4	3.0
1972	70	9	61	599	74	11,192	109	88	11	6	14.1	3.3
1973	100	26	74	580	89	11,969	128	101	13	6	29.5	2.6
1974	126	20	106	670	110	13,354	162	173	24	7	88.4*	4.6
1975	114	9	105	603	86	11,709	161	178	20	6	61.8	1.1

\*Includes \$25 million for Environmental Expenditures.

Source: Company Publications.

from the company's purchases of Canadian goods and services, from taxes paid and exports made. In terms of employment, salaries and wages, and purchases, Quebec receives over 60% of Alcan Canada's contribution to Canada. In the last five years, Quebec has received 84% of the new investment in smelters, and only 30% of the new investment in fabrication. The physical endowment of Quebec and the small size of the Canadian market favors this distribution of investment.

During the period 1966 to 1975, Quebec has received 71% of Alcan Canada's investment in Canada, fluctuating between a share of 50% and 76% annually. Over the same period, Alcan Canada has made 71% of its total capital expenditures outside of Canada: in one year, Canada received only 10% of the total while the high figure was 45%. It appears therefore that Alcan Canada has viewed Quebec as an attractive place for investment in smelting operations rather than fabricating operations, as far as capital expenditures in Canada are concerned, but has viewed investments outside of Canada as being especially attractive. Thus, on a global basis, it can be expected that both Quebec and Canada are of decreasing relative importance to Alcan, as it increasingly internationalizes its operations, although in absolute terms Alcan's investment in Canada is increasing.

These data confirm the increasing importance of foreign markets, especially for sale of fabricated products through Alcan affiliated companies in the U.S., in line with the company's corporate strategy of vertical integration noted in Chapter 3. It again illustrates the problem of the small Canadian market and the fact that Canada relies entirely on imported bauxite. The future impact on Canada is thus likely to be increasing investment by Alcan outside of Canada, especially with respect to raw material sourcing and fabricating facilities. Some expansion of smelting

activities is taking place in Canada, because of favorable energy costs, but this may mean a future increased emphasis on ingot production as far as the Canadian operations of the company are concerned. Canada's position within the overall corporate system of Alcan may thus become one of being primarily a supplier of ingot to affiliate operations outside of Canada.

### CORPORATE INFRASTRUCTURE

Any large organization has to have access to an infrastructure of services necessary to support its main operations. A corporation then has to decide whether to purchase these services or to provide them in-house, and whether to centralize or decentralize their management.

The evolution of Alcan's organizational structure, discussed in Chapter 3, shows how the company dealt with these decisions over time and in particular indicates what services and functions have been provided by the Montreal head office. This illustrates one way in which Canada can benefit, especially in terms of the employment of managerial personnel, from having the headquarters of a multinational enterprise located in Canada. In 1956, the Montreal head office of Alcan employed 1,575 persons: by 1969, the figure had declined to 1,220, mainly as a result of decentralization within Canada. In 1976 the figure stands at almost 1,200, about 62% male and 38% female, the latter being mainly in secretarial and clerical positions.

Apart from the operating divisions involving raw materials, smelting and fabrication in various parts of the world, the head office has contained over the years the service functions of finance, technology, personnel, public affairs, law (secretary), engineering, supply and distribution and international services --see Exhibit 7. In addition, the two key corporate committees,



the Corporate Development Committee and the Executive Committee, are situated in the head office, such that the decision-making power centre of the company is located in Canada. The presence of these committees means that they can be easily sensitized to government policy objectives at the federal and provincial level.

One of the issues concerning Canadian multinational enterprise is that the small size of the Canadian market means that corporate growth after a certain point tends to take place outside of Canada, so that the Canadian market becomes of declining relative importance to the corporation. The end result of this can be that head office functions gravitate away from Canada to wherever the principal market develops, with a subsequent loss of employment opportunities at the managerial level. For example, Moore Corp. of Toronto is building a \$5 million, 200-employee research and development centre in the state of New York to service its Canadian and U.S. operations.<sup>18</sup> To date, this type of development has not happened in the case of Alcan, where significant benefit accrues to Canada as a result of the entrepreneurial functions of the company being located in Canada and largely staffed by Canadians. Two specific examples of the contribution to Canada from head office activities in the case of Alcan lie in the areas of transportation services and finance. Examples could also be drawn for research and development, marketing and industrial relations.

### Transportation

Alcan's total transportation bill is approximately \$200 million annually, divided between the supply of raw materials and the distribution of ingot and fabricated products. Efficiency of transportation is a key consideration for the company, because production involves a product with a high weight-to-value ratio,

and because 90% of the company's raw materials are imported, and 75% of its production is exported. Consequently, expertise has been built up in the company to handle the provision of these services.

Physical distribution and transportation is handled by Alcan's Engineering, Supply and Distribution Division, created in 1974 and headed by an executive vice president who reports directly to the President of Alcan. One of the key tasks of the Division is to rationalize the logistics system of the company with respect to worldwide movements of raw materials and metal. Specific responsibility for this task is given to the Director of Supply and Distribution Services whose responsibilities include marine shipping, bauxite/alumina logistics, distribution and purchasing. A number of managers--product managers on the supply side and functional managers on the distribution side--report to the Director.

Alcan Canada has the following wholly owned subsidiaries operating in the field of physical distribution and transportation: Saguenay Shipping Ltd., Alcan Shipping Services Ltd., Alcan (Bermuda) Ltd., Chaguaramas Terminals Ltd., and The Roberval and Saguenay Railway Company.

Saguenay Shipping Ltd. provides shipping services for the Alcan group especially with respect to the shipment of bauxite, alumina and metal. In order to reduce the costs of hauling raw materials northbound from the Caribbean, the company also operates a southbound general cargo trade. At one time, Saguenay Shipping owned in excess of 100 ships, but now ownership has been replaced by the chartering of vessels. Alcan (Bermuda) Ltd. operates a similar charter service for Alcan's non-Canadian operations, e.g., shipments from the Caribbean to Europe. A major advantage for the company is that it operates in a tax haven. Alcan Shipping Services

Ltd., originally established as a research division of Saguenay Shipping, was spun off to provide research and consulting services on transportation to non-Alcan companies as well as to Alcan. Customers for these services have included the Transportation Development Agency of the Federal Government, foreign governments as well as corporate clients. Company-owned railroads in Quebec provide a common carrier service to non-Alcan customers as well as to the company.

In sum, Alcan provides in Canada and for Canadians in affiliated companies considerable expertise with respect to the transportation function. As a result, over 250 jobs in Montreal are related to these services.

#### Financial Structure and Ownership

In 1975, Alcan's consolidated position showed a debt/equity position of 54% to 46%. Alcan, the holding company, holds the shares of its worldwide subsidiary and affiliate companies. It does not borrow itself but raises capital in Canada and abroad through its subsidiary and affiliate companies. A major corporate objective is to make each subsidiary financially self-sufficient and in a position to borrow in its local national market where developed capital markets exist. For example, AlcanCorp was established in the U.S. in such a way that allowed it to become a direct long-term borrower in the U.S. capital market. Thus the corporate strategy of vertical integration has involved making each subsidiary operation an independent financial entity as far as possible.

Local borrowing reduces some of the problems of paying withholding taxes and of being exposed to exchange rate changes, especially when rates are floating. In some developing countries, such as Guinea, Alcan has entered consortia with other international

aluminum companies. The consortia then borrow money which may be guaranteed pro-rata by Alcan. In Europe and Japan, special corporate vehicles have been created by Alcan to raise capital locally.

Alcan companies have also made private placements with insurance companies, banks, trust companies and pension funds, and have utilized official institutions such as the Export Development Corporation (Canada), the Export-Import Bank (U.S.) and the Export Credit Guarantee Department (U.K.). The principal Canadian investment dealers have been used by Alcan in underwritings, and the company has either deposits or lines of credit with all the major Canadian banks. In this way, Canadian financial institutions are used by a multinational corporation, headquartered in Canada, for some of the worldwide financial requirements of the company. Failure to use Canadian financial institutions by foreign-owned firms in Canada was noted in the Gray Report as one of the disadvantages of the high level of foreign investment in Canada.<sup>19</sup>

In addition, the financial function of the foreign subsidiaries in Canada is largely managed by the parent companies abroad. For example in the case of the Garrett Corporation, a major transportation equipment manufacturer, the financial function in the U.S. parent company is the responsibility of a corporate vice president who has to "Determine and establish financial policy; direct the controllership, treasury and data processing activities; approve selection of division controllers; approve preparation and release of financial data; conduct relationship with the financial community", while in Garrett Canada, the Canadian subsidiary, the accounting controller was responsible for policy implementation with respect to "cost accounting, accounts payable, accounts receivable, general accounting, financial reports,



budgets, credit and collections, termination claims, department costs and performance". Thus the parent company uses the services of qualified financial experts and the subsidiary tends to use the services of qualified accounting personnel.<sup>20</sup> In the case of Alcan, Canada benefits from the employment of senior financial personnel as well as accountants.

The issuance of shares in Canadian companies is important as a vehicle in which Canadians can invest, because of the high level of foreign investment in Canada which limits the availability of Canadian equity shares for Canadian investors.<sup>21</sup> In Canada, the only public share ownership in the group of companies is in Alcan, while the remaining companies are wholly owned subsidiaries. In August 1976, there were in excess of 40 million common shares of Alcan outstanding, owned 49% by residents of Canada, 37.3% by residents of the U.S. and 13.7% by residents of other countries. The nine largest shareholders as of August 1976 accounted for about 23% of the shares and with the exception of the Kingdom of Norway (1.1 million shares) all were nominee accounts. The total number of shareholders was 943 in 1928; 3,065 - 1948; 32,185 - 1957; and 43,987 in 1976 distributed as shown in Table 12. Because of the large percentage of nominee holdings, the actual number of shareholders exceed the total shown above and are not known to the company or to Canadian authorities. A company estimate for 1957 suggested that individual shareholders represented 77% of the 32,185 shareholders and held 23.6% of the shares outstanding.

Alcan's shares are traded on 16 stock exchanges in nine countries, with most of the trading activity taking place on the New York, Toronto and Montreal stock exchanges (9.3, 4.2 and 2.5 million shares traded respectively in 1975). Since 1945, the percentage of Canadian resident share ownership has risen from

TABLE 12

ALCAN ALUMINIUM LIMITED  
COMMON SHARE DISTRIBUTION 1945-1976

Percentage of Shares Held	1945	1950	1960	1965	1970	1972	1975	1976
Canada	12.9	15.1	22.5	31.0	40.6	55.0	42.2	49.0
U.S.A.	87.0	84.7	73.6	65.0	47.8	32.5	45.2	37.3
Others	.1	.2	3.9	4.0	11.6	12.5	12.6	13.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Distribution by Shareholder Type								
Individuals	Statistics		21.8	16.8	23.6	19.7	12.9	10.8
Estates and Trusts	not readily		6.6	8.1	8.3	13.4	8.8	12.7
Banks, Brokers and Nominees	available		56.5	58.2	49.7	46.1	60.5	58.9
Philanthropic and Pension Funds	for these		5.5	6.3	5.6	6.7	4.7	4.0
Corporations, Insurance Companies and Investment Trusts			9.6	10.6	12.8	14.1	13.1	13.6
			100.0	100.0	100.0	100.0	100.0	100.0
Share Trading on Stock Exchanges	1965			1970		1972		1975
Montreal	983,200		1,357,367		1,989,462		2,506,371	
Toronto	1,620,721		2,357,186		2,956,834		4,162,088	
Vancouver	68,774		44,730		104,598		187,550	
New York	4,171,900		5,156,200		3,640,000		9,315,900	
Pacific Coast	188,253		438,096		686,606		539,470	
Midwest	287,400		296,800		574,900		763,300	
Paris	60,600		86,000		86,266		102,396	
Brussels	12,600		13,064		32,424		219,439	
London, England			Not Available					
Amsterdam			"		"			
Swiss (Geneva, Zurich, Basle, Lausanne)			"		"			
Frankfurt			"		"			
Oslo			"		"			

Source: Company Information.

13% to a high of 55% in 1972, declining in 1976 to 49%. Over the same period, U.S. resident share ownership has declined from 87% to a low of 33% in 1972 and has now risen to 37.3%. Since 1960, nominee shareholders have been the largest shareholder type, ranging between 46% and 50% of shareholder type--see Table 12. By many of the criteria used, Alcan is more of a multinational company than many others included in this category.

### INTERNATIONAL CONSIDERATIONS

There are two important areas in which international factors influence Alcan's impact on Canada, its foreign operations and the question of pricing.

#### Foreign Operations

An appreciation of Alcan's foreign operations is necessary in order to understand the impact of the company on Canada, because of the reliance of the company's Canadian plants on imported raw materials, and on export markets for ingots and fabricated products. At the same time, Alcan owns or has interests in plants abroad which can be competitors for its Canadian plants, e.g., alumina plants in Jamaica and Australia in competition with Arvida; smelters in nine countries excluding Canada; fabricating plants in countries which include the United States, United Kingdom, Germany, Italy, Brazil, Venezuela, and Nigeria as well as Canada. Consequently, when Alcan considers the possibility of growth for its Canadian operations, it has to compare the advantages of growth in Canada with those of growth abroad. Consideration has to be made of issues such as market size, tariffs and costs of transportation. Market size, for example, provides a serious drawback to the expansion of fabricating activity in

Canada, as has been shown by the establishment of AlcanCorp in the United States.

To illustrate the issues, two examples of Alcan's foreign operations will be considered, its alumina operations in Jamaica and its smelter interests in Norway. As indicated, Aljam supplies alumina to Alcan's Kitimat smelter and to affiliated or related companies in the U.K. and Continental Europe. To date, the Jamaican government has introduced a bauxite production levy and moved towards equity participation in the subsidiaries of the international aluminum companies in Jamaica, including Aljam. As long as Aljam is a supplier of alumina to Kitimat, the competitiveness of aluminum produced in Canada will be reduced by these Jamaican policies. A number of possible circumstances may result: alumina production in Jamaica may expand at the expense of Canadian alumina production, so that future investment at Arvida is in direct competition with investment in Jamaica; Jamaican alumina may no longer be available to Canada as alternative outlets are developed in the Caribbean-Central American region; or Jamaican alumina may become increasingly expensive with implications for Canadian ingot production. A further scenario may see Jamaican alumina remaining competitive with other sources of alumina and the increased price passed on in the price of fabricated aluminum products. Whatever the outcome, some effects are bound to be felt in Canada.

In the case of Norway, Alcan has since the war had equity interests in aluminum smelter operations, which in 1974 had a capacity of 360,000 tons per annum. Up to 1974, Alcan had a 50/50 joint venture with the Norwegian government in Ardal Sunndal Verk (ASV): in 1974, Alcan sold half its 50% share to the Norwegian government, with the sale explained in terms of State policies to allocate limited power resources, and in terms of resulting



socioeconomic problems in Norwegian communities where ASV operates. ASV is supplied with raw materials by Alcan, mainly from Jamaica, and since it is integrated forwards only to the extent of 10% of its smelter capacity, ASV relies on Alcan's fabricating outlets in Europe for the sale of a portion of its metal. The Norwegian smelters thus represent a comparable competitive situation to Kitimat and Arvida, but in the case of Norway raw materials come from Jamaica and output of the Norwegian smelters is sold in Europe. This situation illustrates a set of production and marketing relationships administered by Alcan which are entirely outside of Canada. Consequently, the predominantly European-Caribbean systems can come into conflict with the predominantly Caribbean-North American system, when consideration is given by Alcan to future expansion. Already Jamaica is a supplier of bauxite to both Norway and Arvida, and the potential for competing demands on this bauxite exists with implications for both Canada and Norway.

Other examples of possible impacts on Canada from Alcan's foreign operations could be drawn from the company's proposed (but delayed) new alumina plant in Ireland, its new smelter in the U.K., its fabricating operations in the U.S., and its relationship with Nippon Light Metal Co. Ltd. in Japan. The point to note is that as a multinational enterprise spins its web of business arrangements, individual countries stand to be affected by parts of its worldwide operations outside of their own countries. Within any large organization, parts of the organization will compete with each other for scarce resources. This is the case for a multinational corporation such as Alcan which has an Appropriations Committee in Montreal to authorize new major capital expenditures--see Chapter 3. This committee has to decide, amongst other things, whether new investment takes place in Canada or elsewhere.

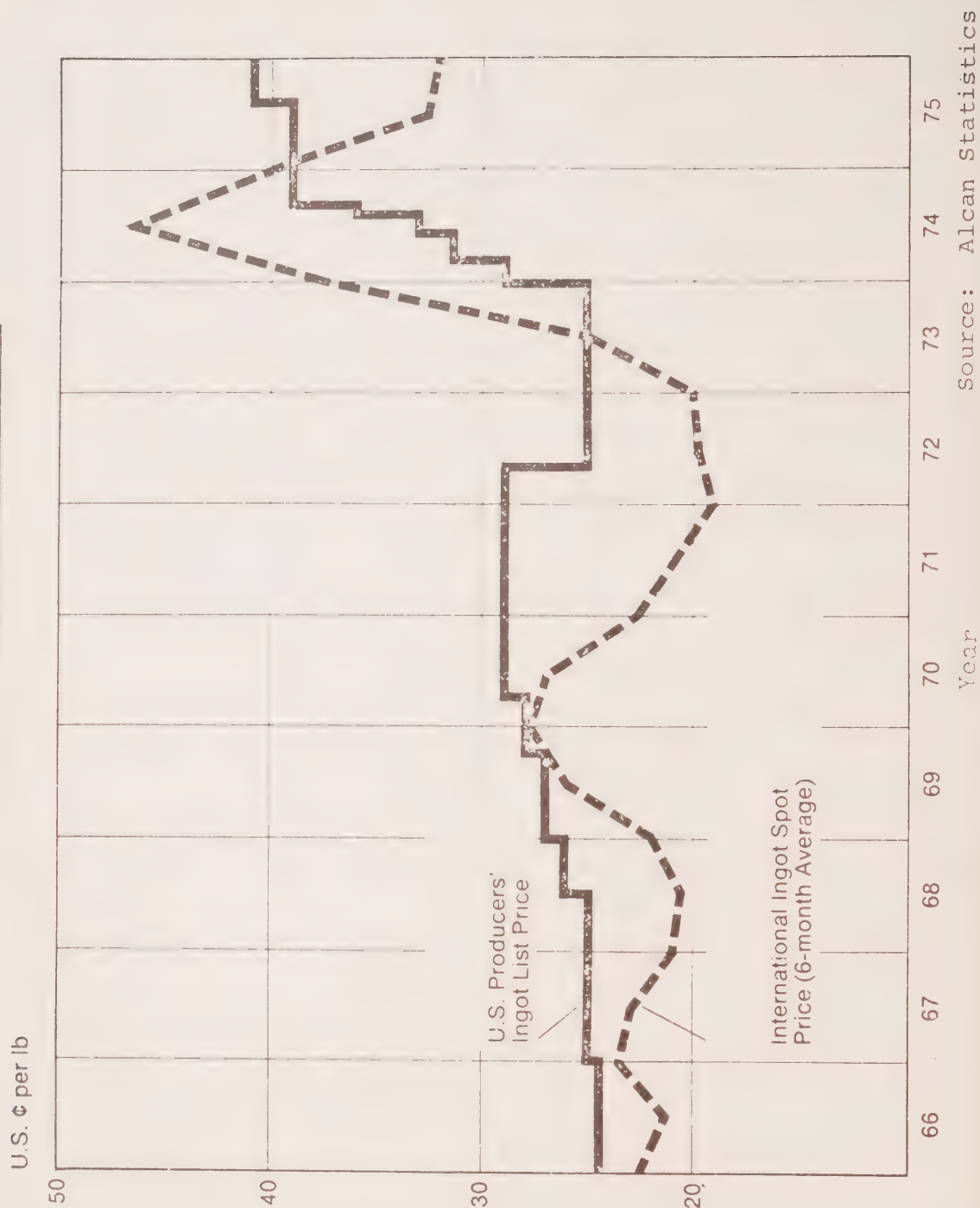
## Aluminum Pricing

A number of issues with respect to aluminum pricing have an impact on Canada and on Alcan, especially during a period of inflation. Considerable attention has been given in economic literature to the impact of market power on price flexibility, with claims being made that market power promotes both price inflexibility and inflation. It was noted above concerning the economizing mode that "the exercise of pricing discretion can contribute to destabilizing forces". Empirical evidence is inconclusive on these claims in the U.S., while in Canada little work has been done to date.<sup>22</sup>

The main price quoted for aluminum in North America is the U.S. producers' ingot list price and the international ingot spot price--Exhibit 11. The list price of ingot changes infrequently, and remained unchanged for two years during 1970 to 1972. However, because over any period of time market conditions alter, the list price tends to become a quoted price while actual transactions take place at a price above or below the list price. The ingot spot price is thus considered to be a more accurate indicator of transaction prices, and as can be seen from Exhibit 11, the spot price was at a discount from list until mid-1973, at which time it was at a premium from list. The reason for this latter situation was that price controls in the United States controlled the quoted list price in that country but could not control the international spot-transactions price. The result was that shortages occurred in the United States as producers sold metal in the higher priced international market. With the onset of recession in 1975, the spot price returned to a substantial discount from list and this time producers are unwilling to lower list prices for fear of future price controls which may make it difficult to raise list prices. It should also be noted that Japanese and European ingot

# EXHIBIT 11

## TRENDS IN ALUMINUM PRICES, 1966-1975



prices tend to be higher than North American ingot prices because of higher costs of production, especially energy costs.

Aluminum ingot prices are not the only prices with which Alcan has to be concerned, especially as its strategy of forward integration has meant that increasingly arms' length transactions and prices involve a wide range of fabricated products, while at the same time more ingot sales are made on the basis of intrafirm sales between affiliates of Alcan on the basis of company established transfer prices. For a vertically integrated company, intrafirm sales and transfer prices may involve at least the prices of bauxite, alumina, and ingot while the first arms' length transaction may occur when fabricated products are sold. This situation prevails in the international aluminum industry where there are no frequently quoted prices for bauxite and alumina, because there is no open market for these two commodities due to the major smelter owners also owning their supplies of alumina and bauxite.

The discretion that a company has over transfer pricing is valuable to it in the sense that it can set transfer prices in order to decide where it will take its profits. There are however a number of constraints on this discretion. First, where an affiliate is forced to make a loss or low profit due to being able to charge a low transfer price, it will tend to be resisted by the affiliate's management who may feel that it reflects poorly on their abilities. This situation is often overcome by keeping two sets of accounts, but frequent changes in the procedure for establishing transfer price changes will tend to complicate the evaluation of the affiliate's performance. Second, tax and tariff authorities, often in at least two countries, tend to monitor and require justification for transfer prices, and the two sets of authorities tend to be interested in altering the level of prices



in opposite directions. Third, in the case of bauxite and alumina, there are some arms' length transactions, so that some standard of comparison exists against which transfer prices can be measured. Ultimately, whatever transfer prices are used at different stages of production, there is one over-all profitability figure for a vertically integrated company.

Historically, Alcan's profits have been taken at the bauxite mining stage in terms of a high rate of return on investment, although in an absolute sense most profits have been collected at the smelting stage because of the high level of investment in smelting. Generally, Alcan tends to quote the same list price of ingot as is quoted by the other North American producers. However, Alcan's prices of fabricated products tend to be higher in Canada than in the U.S., and this is revealed by the fact that Alcan's briefs to the Canadian government concerning trade negotiations have argued for low tariffs and free trade in ingot and protection for Alcan's fabricated aluminum operations in Canada. The implications of this situation is that ingot produced in Canada and fabricated for sale in Canada costs more to fabricate than ingot produced in Canada, transported to the U.S., fabricated by Alcan's subsidiaries in the U.S. and sold in the U.S. market. The higher price in Canada must be justified in terms of Canadian fabricating costs exceeding the costs of transporting ingot to the U.S. and fabricating it in the U.S.

Aluminum is an industry with high fixed costs and traditionally a high breakeven point. Recently, however, fixed costs have declined as a proportion of total costs due to rising costs of energy, bauxite, other raw materials and direct labor, which together with the higher price of ingot may have produced a lower breakeven point.

A few years ago we estimated that the industry, in an integrated operation through fabrication, needed to produce at 74% of capacity to break even. In 1975, depending on plant proximity to various power sources, we estimate the break-even point is somewhere about 40% of capacity.<sup>23</sup>

Alcan disagrees with this analysis in the case of its North American operations: while it agrees that the breakeven point has been declining, the level of 40% is considered far too low. One reason for the discrepancy is that a single figure is not applicable to all firms in the industry due to differences in degrees of integration, product mix and age of plant.

In previous years excess capacity was considered a more serious problem, and when the spot price became a substantial discount from list price, the list price would be lowered, as in 1972. Now the discount from list is growing, but list prices are rising, so that firms are resisting cutting list prices. The fact that list prices are raised in a period of recession is indicative of the changed cost structure of the industry, and of the power of the firms to be able to be reasonably certain that none of the major producers will start cutting prices. A major concern for the U.S. firms was that price controls would be reestablished, making it difficult to raise prices. Similarly in Canada, Alcan had established a higher price before the Canadian price controls were introduced. In sum, the firm's pricing tactic during inflation, and either actual or threatened price controls, is not to give away any list price level it has attained for fear of not being able to restore a price cut once made. The tactic of list pricing has to be played alongside the tactic of discounting from list where appropriate. Alcan has behaved in the same way as the other North American aluminum companies as far as pricing is concerned. Overall, the pricing behavior of the company

from the cartel agreements in the 1930s to the present is typical of what would be expected in an oligopolistic industry involving a homogeneous product.

#### THE SOCIOLOGIZING MODE

As Professor Bell's sociologizing mode indicates, any large corporation has a wider range of impacts on society than a narrow economic analysis recognizes. In this section, a variety of these social impacts will be discussed, recognizing that many of them have economic implications for both Alcan and Canadian society as well. Before proceeding with the examples, a statement of Alcan's underlying viewpoint will be presented.

Alcan's general philosophy with respect to social relationships is based on making a distinction between what is produced and how production occurs. A recent management statement indicates that the company assumes that the production of aluminum is a legitimate and desirable activity, but then has to be concerned with how the activity is best conducted. Two conditions have to be recognized, first that there may be conflicting demands on the firm's management, who has to reconcile these demands, and second that the activity takes place in a certain political, social and economic environment. Alcan supports the "basic tenets of the private enterprise competitive system", and sees successful management as "balancing the claims and expectations of investors, employees, customers, suppliers and the public". Recognition is given to the fact that Alcan's board of directors and senior management have considerable discretionary scope to exercise judgment in the choice of means used to achieve the firm's commercial objectives, despite the constraints imposed by competitive forces, laws and regulations.

Alcan's view of the contemporary economic system and how it should operate is summed up in the company's words as follows:

- a. High ethical standards are a prerequisite of business conduct.
- b. The competitive market economy best serves human economic interests, and within an appropriate framework of laws and regulations, does not conflict with other human interests.
- c. An appropriate framework of laws and regulations should only be designed to prevent abuses, but should otherwise interfere as little as possible with market forces except in emergencies.
- d. While contracts should be respected, commercial transactions in the long run can stand the test of time only if both parties to them derive some benefit.
- e. An enterprise can commandeer nothing. Therefore, customers are important, employees are important, access to capital is important, acceptability by the public in general is important. Therefore any enterprise must seek to balance the interests of those concerned.

An earlier statement concerning Alcan's policy with respect to charitable donations, but with implications for its social responsibility is contained in a 1942 letter from Mr. E.K. Davis, then president of Alcan:

Fundamentally, it does not lie within the legitimate power of a corporate officer to give away the company's money. The directors are elected and the officers are appointed to keep and make money, not to give it away.

This statement coincides with Professor Milton Friedman's position on the social responsibility of large corporations, and implies a principal responsibility to shareholders, with consideration given for other constituents of the corporation only in that such consideration is necessary to promote the interests of shareholders.



What does it mean to say that the corporate executive has a 'social responsibility' in his capacity as a businessman? If this statement is not pure rhetoric, it must mean that he is to act in some way that is not in the interest of his employers. For example, that he is to refrain from increasing the price of the product in order to contribute to the social objective of preventing inflation, even though a price increase would be in the best interests of his corporation. Or that he is to make expenditures on reducing pollution beyond the amount that is in the best interests of the corporation or that is required by law in order to contribute to the social objective of improving the environment. Or that, at the expense of corporate profits, he is to hire 'hard-core' unemployed instead of better qualified available workmen to contribute to the social objective of reducing poverty....

In a free-enterprise, private property system, a corporate executive is an employee of the owners of the business. He has direct responsibility to his employers. That responsibility is to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom.<sup>24</sup>

The opponents of Professor Friedman argue that the corporation does have a wider obligation and in areas which include satisfaction on the job, relative pay considerations, responsibility to a community, responsibility for the environment and confrontation with moral issues.<sup>25</sup> These issues will be examined in the case of Alcan by way of examples which relate to each of the areas.

## MANAGEMENT

In 1958, there remained in key positions in Alcan three of the "tall, husky fellows" who had been Alcoa-trained and had been brought by E.K. Davis to establish the Canadian operation 30 years earlier. It is clear that in 1958 Alcan was still managed at the senior level by persons who had had Alcoa connections, and who were largely born and educated in the U.S. Some evidence also exists for the presence of a Harvard University connection and for the view that there is a Harvard Graduate School of Business group that runs the company.

Seventeen years later in 1975, there had been some substantial changes in the directors and officers of Alcan. These persons are listed in Table 13 together with their counterparts in Alcan Canada. In 1975, there were 15 directors of Alcan (9 Canadian citizens, 3 U.S., 2 U.K. and 1 Norwegian: 7 outsiders and 8 insiders) and thirteen executive officers (10 Canadian, 1 French, 1 U.S. and 1 U.K.). In Alcan Canada, there were 12 directors (10 Canadian, 2 U.S.: all insiders) and twelve executive officers (all Canadians). Thus in one sense the company had become increasingly Canadianized. However, throughout the period from 1928 to the present, the position of chief executive officer has been filled by two persons, father and son, both of whom retained their U.S. citizenship.<sup>26</sup> Whereas the present directors and officers have mostly received their university education in Canada, the Harvard connection remains in the case of Messrs. Davis, Culver, Leman, Hale, Hill, Rich, Trigg, West and Winsor.

Only two persons hold positions as directors and officers of Alcan and Alcan Canada, Messrs. Culver and Leman. Mr. Culver is also chief executive officer of Alcan Canada as Mr. Davis is of Alcan. In addition, Mr. Culver provides a link with an earlier

TABLE 13  
DIRECTORS AND EXECUTIVE OFFICERS,  
ALCAN AND ALCAN CANADA, 1976

<u>Name</u>	<u>Citizenship</u>	<u>Alcan 1976</u>		<u>Alcan Canada 1976</u>	
		<u>Dir.</u>	<u>Ex. Off.</u>	<u>Dir.</u>	<u>Ex. Off.</u>
E. Brofoss	Norwegian	X			
J.W. Cameron	Canadian	X	X	X	
D.M. Culver	Canadian	X	X	X	X*
N.V. Davis	U.S.	X	X*	X	
J.J. Deutsch (dec.)	Canadian	X			
P.J. Elton	British	X			
Vis. Harcourt	British	X			
J.T. Hill	U.S.	X			
P.H. Leman	Canadian	X	X	X	X
L. Rasminsky	Canadian	X			
J. Sinclair	Canadian	X			
E.A. Trigg	Canadian	X	X		
W.O. Twaits	Canadian	X			
E.F. West	U.S.	X		X	
P.J.J. Rich	French		X		
N.S. Crerar	Canadian		X	X	
J.H. Hale	Canadian	X	X	X	
F.G. Barker	Canadian		X		
D.C. Campbell	Canadian		X	X	
H.S. Ladd	Canadian		X		
A.A. Bruneau	Canadian		X		
T.F.D. Simmons	British		X		
H.C. Corrigan	Canadian			X	X
B.L. Davis	Canadian			X	
R.F. Donahoe	Canadian			X	X

TABLE 13  
(continued)

<u>Name</u>	<u>Citizenship</u>	<u>Alcan</u> <u>1976</u>		<u>Alcan</u> <u>Canada</u> <u>1976</u>	
		<u>Dir.</u>	<u>Ex. Off.</u>	<u>Dir.</u>	<u>Ex. Off.</u>
J.J. Gagnon	Canadian				X
M.G. O'Leary	Canadian				X
R.W.F. Phillips	Canadian			X	X
R.F. Sharratt	Canadian				X
C.M. Tetrault	Canadian				X
J. Vaillancourt	Canadian				X
F.C. Winser	Canadian				X
T.L. Brock	Canadian				X

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\*Chief Executive Officer

Source: Alcan Publications.



generation of Alcan executives, being the son-in-law of Mr. R.E. Powell who at one time held the same position in Alcan Canada. Mr. Leman, a Director and Chairman of the Board of Alcan Canada, is one of four French Canadians in the company's senior management. He is also a Director and President of the parent company, Alcan Aluminium Limited.

The annual remuneration and retirement benefits of the directors and officers of Alcan Canada are listed in Table 14. This table is incomplete because some of the individuals are officers and directors of other affiliates in the Alcan group for which they receive remuneration. The level of annual remuneration can best be judged by comparing these salaries with those of other senior corporate executive officers, which will indicate what the going rate is for such persons. A 1975 survey of the remuneration received by 393 chief executive officers in the U.S., who each received more than \$200,000 annually, shows that the top-ranking firm was IT&T at \$791,000 and the other aluminum companies ranked as follows: Alcoa, 10th, at \$528,000; Kaiser, 130th, at \$330,000; and Reynolds, 252nd, at \$262,000. Alcan would have ranked 300th at \$235,000.<sup>27</sup> A further survey by McKinsey and Co. showed that the average \$1 billion company paid its chief executive officer \$234,000 in 1975, so that by this standard, Alcan pays the average remuneration to Mr. Davis almost exactly.<sup>28</sup>

#### EMPLOYEES AND WORKING CONDITIONS

In 1974, Alcan employed worldwide 64,000 persons, twice the figure for 1950. Employment in Canada totalled 20,000 or about 30% of the 1974 total, while employment in the U.S. has risen from 100 in 1950 to 775 in 1964, 2,000 in 1965 and 4,500 in 1974 reflecting the strategy of forward integration into the U.S. market.

TABLE 14

ALCAN CANADA: DIRECT REMUNERATION AND RETIREMENT  
BENEFITS OF DIRECTORS AND OFFICERS, 1975

	<u>Aggregate Direct Annual Remuneration</u>	<u>Estimated Annual Pension Benefits Upon Retirement</u>
N.V. Davis	\$235,758	\$133,700
P.H. Leman	188,017	104,200
D.M. Culver	158,450	88,500
E.F. West	133,044	70,100
J.H. Hale	130,358	72,000
J.W. Cameron	124,558	68,800
H. Corrigan	93,558	47,300
N.S. Crerar	88,291	49,600
R.F. Donahoe	81,313	42,200
B.L. Davis	63,666	33,900
D.C. Campbell	55,250	29,300

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Source: Alcan Canada Form 10-K, Dec. 31, 1975, p. 28. Notice of Annual Meeting of Shareholders and Proxy Statement, Alcan Aluminium Ltd., March 11, 1976. Individual information for each of its three highest paid officers, for each of its directors whose individual aggregate direct remuneration exceeds \$40,000, and for all of its directors and officers as a group. Aggregate direct remuneration for senior employees consists of an annual salary component plus a variable component which may fluctuate up or down between successive years depending on the profit performance of the company.

Alcan Canada employs about 29,000 persons distributed 20,000 in Canada, 4,500 in the U.S. and 4,500 in the Caribbean. The payroll distribution of Alcan Canada's employees in Canada by communities is shown in Table 15. These data show that Alcan Canada has a major impact on two provinces, Quebec and B.C., and within those provinces on two regions, Saguenay-Lac St. Jean and Kitimat-Kemano respectively. In the Saguenay-Lac St. Jean region, Alcan Canada's 9,000 employees constitute 10% of the regional work force and receive wages and salaries of \$115 million. The company's employees and dependents are estimated at 47,000 out of a population in the region of 280,000, or 17% of the total. A further estimate indicates that 600 to 700 man years of employment are provided by contracts made locally in the region.

At Kitimat-Kemano, Alcan Canada is by far the largest employer, with 2,400 employees and 9,000 dependents out of a work force of 3,000 and a population of 13,500 in the region. Total wages and salaries paid are \$38 million to this group of employees. Unlike the Saguenay-Lac St. Jean region, Kitimat-Kemano is an isolated and recently settled community such that labor turnover is the principal industrial relations problem facing the company and the community. Between 1962 and 1972, annual turnover rates ranged between 13% and 38%, but reached 60% by 1973.

Alcan has had a major impact on the development of the two townsites of Arvida and Kitimat. At Arvida, the policy of the company has been to finance on easy terms the sale of Alcan-built houses to the employees so that almost no homes are now owned by Alcan. Similarly, at Kitimat, the company arranged for the original housing to be built and set up a special housing bonus to help employees purchase a home. In both areas, many company employees have been elected as municipal councillors and to the boards of trustees for local hospitals. The impact on these

TABLE 15

ALCAN CANADA PAYROLL DISTRIBUTION  
BY COMMUNITY 1966-1974

Number of Employees (Annual Average)	1966	1967	1968	1969	1970	1971	1972	1973	1974
Quebec - Saguenay									
Lac St. Jean	9,755	9,627	8,970	8,982	9,222	8,862	7,987	8,644	9,625
Shawinigan	1,205	1,198	1,148	1,180	1,245	1,235	1,122	1,124	1,175
Beauharnois	276	293	268	333	325	286	233	279	347
Other	1,876	1,796	1,576	1,592	1,820	933	1,850	1,922	2,207
Quebec - Total	13,112	12,914	11,962	12,087	12,612	11,316	11,192	11,969	13,354
Canada - Total	19,256	19,569	18,421	18,643	19,546	18,275	17,514	18,805	20,571 <sup>a</sup>
Salaries and Wages (Thousands of Dollars)									
Quebec - Saguenay									
Lac St. Jean	\$ 65,837	\$ 70,118	\$ 67,504	\$ 74,537	\$ 78,823	\$ 76,528	\$ 78,932	\$ 90,156	\$114,922
Shawinigan	7,961	8,085	8,370	9,591	10,354	10,655	10,203	11,066	13,438
Beauharnois	1,871	2,205	1,969	2,729	2,704	2,537	2,060	2,974	4,131
Other	15,778	16,179	16,412	21,932	18,794	12,749	18,130	23,709	30,796
Quebec - Total	\$ 91,447	\$ 96,587	\$ 94,255	\$108,789	\$110,675	\$102,469	\$109,325	\$127,905	\$163,287
Canada - Total	\$131,029	\$142,416	\$142,309	\$161,305	\$165,857	\$168,543	\$170,370	\$205,288	\$249,284 <sup>a</sup>

<sup>a</sup>The Kitimat-Kemano smelter-power complex accounts for 2,400 employees and wages and salaries of \$38 million.

Source: Alcan Canada publication.



communities is shown in Table 15, in terms of employment, wages and salaries. In addition, the activities of the company have had a multiplier effect on these two communities and regions.

Corporate administration of employee-related matters is handled through a wholly owned subsidiary of Alcan Canada. This subsidiary has an industrial relations department, a staff personnel department, and a pension department which administers the employee retirement income and life insurance plan. In addition, it provides coordination for health and safety practices and is responsible for two company periodicals, The Compass and The Journal. The operations of this subsidiary is one illustration of the benefits to Canada of having the parent company of a multinational enterprise located in Canada. The organizational structure of the company results in certain head office functions and their associated employment being located in Canada.

Employee training is undertaken at various levels within the organization. For example, at Arvida, there is a training department associated with the company's operations, which provides classes ranging from grade school arithmetic to postgraduate physical chemistry.

A major company project was the creation in 1947 of the Centre d'études industrielles (CEI) in Geneva. CEI was established by E.K. Davis on behalf of Alcan. The purpose of the institution was to provide a training centre for employees of Alcan which was "designed to indoctrinate the individuals of the international aspects of business, mature his judgment and develop an ability to understand and work with people of different nations and culture".<sup>29</sup>

From 1947 to 1956, 164 students were graduated, 151 financed by Alcan; 130 graduates were working for Alcan in 1957. In 1956, CEI became associated with the University of Geneva and non-Alcan

participants were admitted. At the end of the year's course, the students received a diploma from the university. Between 1956 and 1965, the annual intake of students was 25 to 35 with an average age of 33 years and with students coming from 12 to 14 countries. By 1965, 400 students had completed the course.

The complexion of the training at CEI has changed since 1965, so that by 1974, 600 executives from 200 companies attended CEI for courses which lasted from one week to nine months. While all three Directors of CEI have come from Alcan, the school is now legally a foundation dependent on revenues generated 75% from tuition fees, and the remainder from firms, foundations and research grants.

CEI is an interesting phenomenon in that it provides an example of one way in which a large company attempted to provide a common experience to some of its employees which would benefit the company directly through their studies, and indirectly through the interaction of employees from different parts of the world. It was felt that the future coordination and management of a large international organization could be assisted through such a program of study. The later development of CEI into one of Europe's few business-management schools reflected a different philosophy, and perhaps was a commercial response to the demand in Europe for such institutions.

In Canada, Alcan participates in an Alcan-McGill Consulting seminar run by McGill's Faculty of Management Studies. MBA students and company managers cooperate on consulting projects concerned with real company issues. The students act as consultants and the managers as clients in an exercise which is a learning experience for the students and may provide some input for the company. Similar relationships exist with other universities. For example, Saguenay Shipping works with Concordia

University and with the Transportation Centre at the University of British Columbia. All these connections are illustrative of benefits which can accrue from the local presence of the headquarters of a multinational corporation.

The nature of the production process has meant that Alcan employs few women outside of office jobs. In 1974, a move was made to introduce women into the smelter work force at Kitimat, with training assistance provided by the federal government. There are 5,512 persons on the staff payroll (Montreal payroll) of Alcan in Canada, 1,078 (20%) of whom are female: 85 of these women are graduates, mainly in arts, sciences and commerce, on average about 30 years old and with eight years of service. Women occupy senior positions in payroll, placement, systems, library and accounting. However, it is noticeable that no women are on the Board of Directors of Alcan or Alcan Canada, nor do they hold senior executive positions in the companies.<sup>30</sup>

Language policy has also been an issue in the company which has over 12,000 employees in Quebec, 90% of whom are French Canadians. Because of this, the working language of Alcan Canada plants in Quebec is French, with English and French being used at the Montreal head office. Alcan presented this position to the Gendron Commission on languages in Quebec on the grounds that Montreal was the head office of the company's worldwide operations, where the working language was English. Any attempt to force a change in this situation would cause the company to consider re-locating its headquarters.

Employee health problems vary between smelter, fabrication and mining plants. The smelter workers are exposed to problems of heat, dust, noise, fluorides and hydrocarbons, and the fabrication workers are mainly concerned with problems of noise and skin irritation. However, it is the St. Lawrence, Newfoundland

fluorspar mine where in the past serious problems have occurred. In 1958, a high incidence of lung cancer was noted amongst the workers. This was found to be due not to the ore itself, but to radioactive contamination of the mine. By increasing ventilation in the mine, the contamination was reduced to a fraction of the safe limit, and there have been no cases of lung cancer amongst employees who have started work in the mine since 1960. It should be noted however that "health and working conditions" was identified as one of the major causes of the 1975-76 work stoppage at the fluorspar mine, and is currently a major cause for concern in the Canadian smelter operations. Research on health problems is being undertaken as follows: Alcan is participating in a study of lung cancer, being undertaken by the Department of Epidemiology and Health of McGill University, in a mortality study of smelter workers being carried out by the Aluminum Association in the U.S., in a study of the incidence of acute and chronic lung conditions in smelter works by McGill University, and in a study of skin problems of smelter workers by Laval University.

#### UNION RELATIONS

Trade union relations between Alcan Canada and its Canadian employees involve eight unions and 23 union contracts covering 63% of the 20,000 employees in Canada, see Table A-5. Two-thirds of the union contracts cover employees in Quebec, and one-third cover employees in B.C., Ontario and Newfoundland. In Quebec (mainly the Arvida area), there are 12 agreements, many of which are negotiated simultaneously. Overall the distribution of unions reflects the spread of the company in Canada, but the concentration of activity in Quebec.

Since the early 1950s, there have been 20 strikes reported



in Alcan plants, lasting an average 32 days (compared to an industry average of 24 days),<sup>31</sup> and ranging from 1 to 160 days--see Table A-6.

The general climate of industrial relations is strongly influenced by the fragmentation of the unions and the rivalry between unions, a situation which some argue has been fostered by the company in a "divide and rule" policy.<sup>32</sup> In addition, the company appears to take the offensive in threatening lockouts and following through with these threats, for example at Kitimat and the St. Lawrence, Newfoundland fluorspar mine in 1975.<sup>33</sup>

However, the unions have shown an inability to get along with each other, as evidenced by the separation of the Arvida workers from those at Shawinigan, due to an intra-union dispute in 1972. The fact that many of the original Alcan unions were based in Quebec may also have made it difficult for them to work closely with predominantly English-Canadian union members in Ontario and B.C. While Alcan Canada may have benefited by the ability to divide and rule in the face of a fragmented union set-up, there are also considerable costs incurred in having to negotiate 23 separate union contracts. It is by no means clear that Alcan Canada now benefits from such a situation, nor that Canada's flagging productivity performance is helped when such conditions prevail in a large industry.

The evolution of industrial relations at Arvida since 1941 involved first, Le Syndicat National Catholique, which represented 25% of Alcan's 4,000 employees in the region. The 1941 (Arvida) strike has been described as occurring because of the weakness of the union, the failure of the company representatives to resolve grievances quickly, the lack of communication with nonunion employees, and between English-Canadian company officials and French-Canadian union officials, and the lack of sympathy of the

workers for the critical need for aluminum in the war effort.<sup>34</sup>

After the 1941 strike, union membership tripled and in 1948 the union became associated with the CNTU. Labor relations were much more stable at Arvida except for a lengthy strike in 1957. In 1972, the workers at Arvida broke away from the CNTU, while the Shawinigan workers remained affiliated. This split led to considerable interunion rivalry during the 1973 negotiations including damage to persons and property resulting in the dismissal by Alcan of 48 workers.<sup>35</sup> As of 1976, 1,400 workers at the Shawinigan smelter and fabrication plant, the Roberval-Saguenay railway and the Newfoundland Fluorspar Works were associated with the CNTU, while workers at Arvida, Isle Maligne, Port Alfred, the power sites, and Beauharnois were associated with the independent Fédération des syndicats du secteurs de l'Aluminium (FSSA).

At Kitimat, the workers were represented by a number of weak unions, until the United Steelworkers won a certification vote in 1957. However, dissatisfaction with the steelworkers led to the formation of an independent Canadian union in 1972, the Canadian Association of Smelter and Allied Workers affiliated with the Congress of Canadian Unions.

There is another side to Alcan's union relations, namely the conditions which prevail at Alcan Canada's fabricating works at Kingston (Alcanproducts) which incorporates an approach to the operations of the plant that is different from "the traditional approach for large industrial organizations".<sup>36</sup> Employees at Kingston are represented by the United Steelworkers and the International Association of Machinists, both certified in 1945. Since that time, the two unions have worked closely with the plant's management to devise a work environment that would increase the responsibility and involvement of both foremen and workers, in order to release and utilize the potential of these individuals.

Major formal changes which have come about over the years include the removal of time clocks, the elimination of the inspection department, and the changeover from the hourly wage payments to salary payments. Informally, there exists good communication between labor and management so that most grievances are handled before positions become hardened and formal procedures are required. As a result, the only strike of consequence took place in 1974. Substantial favorable results have been claimed for this plant in terms of improved productivity over the years.

Alcan's labor relations at Kingston provide a contrast to relations at the St. Lawrence fluorspar mine and to the threatened lockout at Kitimat. Thus, it is difficult to generalize about the company's union relations when there is considerable variation between plants in Canada. However, it is clear that the consequences for Canada of a large company facing a fragmented union structure may be quite different from the situation of facing one union. Both situations present problems for unions and management, but it may well be that corporate productivity and performance is enhanced by one or a few unions dealing with a large corporation.

An additional factor entered the picture in late 1975 with the introduction of the Anti-Inflation Board (AIB) program in Canada. Alcan workers at Kitimat settled within the guidelines of the AIB in January 1976, only to be faced by a more generous settlement made to pulpworkers in Kitimat and approved by the AIB. This put the union representing the smelter workers in an untenable position, leading in early June to an illegal walkout by Alcan's Kitimat workers with the approval of the union executive who requested that the contract be reopened. To counteract the effects of the illegal walkout, the company transferred supervisory workers from Quebec to British Columbia in order to continue production at the smelter. Concurrently, the 8,000 Quebec smelter

workers for whom the FSSA was negotiating a new contract, asking for wage increases in excess of the AIB guidelines, went on strike without letting the staff complete normal shutdown procedures--the electricity was turned off a number of pot lines without the molten metal being removed. This was very costly, both to the company and to the workers, since it resulted in start-up costs estimated at about \$25 million due to this factor alone. One immediate result of the June 1976 strike in Quebec and Kitimat was that Alcan lost 60% of its production capacity, as well as placing its North American fabricating system in jeopardy because of inadequate supply of sheet ingot. Nonetheless, the potential costly repercussions of the strike were quickly and greatly reduced because corporate management could draw on the strengths of Alcan's global system to mitigate the effects of the Canadian situation. For example:

The need to find metal in appropriate form was a major concern...we had to find new sources of sheet ingot for Oswego, both for their own needs and for those of Alcan Canada Products' mill at Kingston...working with NKK, solicited their cooperation quickly in terms of a metal sale and possible toll arrangements...working hand in hand with AlcanCorp Sheet and Plate Division...arranged a package of swaps with a variety of U.S. producers....<sup>37</sup>

In 1976, key issues in Alcan's labor-management relations are the implications of inflation in terms of the demand for re-opening existing collective agreements, satisfying the AIB, and negotiating cost-of-living adjustments; labour's demand for guarantees of earnings and employment in the face of technological change and cyclical conditions in the industry; and general working conditions with emphasis on health and safety.



## THE ENVIRONMENT

The control of pollution is coordinated with the assistance of head office in Montreal and with the support of the research and development units. In addition, each plant is responsible for environmental control. Most of the pollution problems occur at the smelters from emissions of fluoride, sulfur dioxide, hydrocarbons, suspended particulates, hydrochloric acid, dust fall and at the alumina plants from water pollution.<sup>38</sup>

The federal, British Columbia and Quebec governments have legislation which controls pollution and which the company is moving to meet through expenditures of \$50 million from 1973 to 1975, and planned expenditures of \$80 million from 1976 to 1980. In addition, capital expenditure by way of replacement or new investment will reduce pollution by incorporating equipment which results in less pollution.

## POLITICAL INVOLVEMENT

A large corporation views itself as making contributions to the state and to the political process in a number of ways. First, it pays corporate income taxes, second it contributes to charities, and third it makes direct payments to political parties.

In 1971, Alcan donated \$972,000 by way of worldwide charitable contributions, almost 1% of net income. Between 1960 and 1971, Alcan's contributions averaged 0.7% of net income, ranging from 0.5% to 1%. The recipients of the 1971 donations are illustrative of the areas supported by Alcan: education, \$404,000; welfare, \$315,000; hospitals, \$39,000; religious, \$7,000; miscellaneous, \$206,000. Donations are made by individual companies: for 1971, the major contributing companies were Alcan Canada, Alcan Jamaica Ltd., Indian Aluminum Co. Ltd., Alcan and the Demerara Bauxite Co.

Ltd. Those institutions receiving \$10,000 or more are shown in Table A-7. It is interesting to note that the two largest donations were made outside of Canada--to the Jamaican Prime Minister's Vocational Training Fund, and to the Indian National Defense Fund.

Since 1971, detailed information is only available for Alcan Canada, which donated \$471,000 in 1971 and \$354,000 in 1975, representing about 1% and 65% of net income after taxes respectively. The variation in this percentage figure is due to the fluctuation in net income. For 1975, Edward Davis might wonder whether adherence was given to his philosophy of "the officers not giving away the firm's money".

Charitable donations are administered through three donations committees that deal with Quebec-based appeals, with Ontario-based appeals and with national and university appeals. Guidelines are established for considering eligibility for an Alcan contribution: these include (1) the recipient must be a nonprofit organization; (2) projects must be deductible from income tax in Canada; (3) support is emphasized to charitable, health, welfare, cultural and civic improvement projects in communities where Alcan has plants; and (4) education is handled on a national basis, and capital contributions to universities are stressed. In recent years, increased support has been given to appeals such as anti-drugs, youth involvement, cultural endeavors and Canadian unity. Substantial donations were made to the 1971 relief fund for St. Jean Vianney, a village near Arvida, and to the 1976 Olympic Games with respect to the sailing events at Kingston, Ontario where Alcan Canada's largest fabricating plant is located. The distribution of funds between Quebec, Ontario and National appeals is as follows for 1973 to 1975:

	<u>1973</u>	<u>1974</u>	<u>1975</u>
Quebec	24%	25%	27%
Ontario	16%	21%	23%
National & University	60%	54%	50%

As far as financial contributions to political parties are concerned, Alcan's policy is to make contributions to parties and not to individuals, and to support all parties that are not antagonistic to the private enterprise system. From 1970 to 1974, an average of \$68,000 per annum was given to all Canadian parties.

On specific issues affecting the company such as taxation, tariffs, financial subsidies and multinational corporations, a more direct approach is made to cabinet ministers and to senior bureaucrats in Ottawa and the provinces. Briefs are submitted by the company on proposed tax and tariff changes and on issues such as Canada's position concerning the U.N. report on multinational corporations. While Alcan staffs an office in Ottawa, as well as in Washington, to provide a watching brief on government policies, the method of lobbying in Ottawa to date has been much more low key than that in Washington. This is the case for other companies besides Alcan. In Canada, the personal relationship between politicians, bureaucrats and businessmen has been used more extensively by Alcan. A retired executive notes that "one of R.E. Powell's outstanding attributes was his ability to make and keep friends of outstanding men in governmental, industrial and educational fields". It was noted that Powell, a senior officer in Alcan, had friendships with leaders of the day such as C.D. Howe, Premier M. Duplessis, Archbishop Roy of Quebec and Cardinal Leger of Montreal.

Alcan's outside directors have also provided important links to government. For example, since 1958, three directors were formerly senior Liberal Cabinet Ministers, C.D. Howe, J. Sinclair

and R.H. Winters, while two more had held senior government positions, J.J. Deutsch (Chairman of the Economic Council of Canada) and L. Rasminsky (Governor of the Bank of Canada). In addition, senior management officers hold executive positions in organizations which make representations to governments such as the Canadian Manufacturers Association, Chambers of Commerce and Boards of Trade. These contacts provide the company with opportunities for presenting its views to municipal, provincial, federal and international authorities whose actions may affect their operations.

Politics have involved the company in a different way when Alcan's annual meetings have been disrupted by shareholders protesting the company's involvement in South Africa and in Portugal's former colony of Mozambique. The position taken by the company on these occasions is to indicate support for the Canadian government's position, that trade and investment bring improved standards of living for Africans as well as increased understanding of black African problems. Moreover, Alcan exercises the same level of morality as the Canadian government which encourages trade and investment in South Africa through diplomatic and commercial representation, and which allows South African investment in Canada, notable examples of which include the Hudson Bay Mining & Smelting Co. and Rothmans.

\* \* \*

The sociologizing mode does not lend itself to quantifiable comparison such as measures of profitability and productivity; rather, it provides a list of characteristics which need to be examined concerning the constituents of large corporations. These characteristics have been illustrated in terms of Alcan's operations in Canada. When more case studies are available, it will then be possible to reach stronger comparative conclusions about the performance of any one company.



## NOTES TO CHAPTER 1

### ALCAN--AN OVERVIEW

1. A complaint of this nature was laid in 1968 by Industrial Wire and Cable Ltd. against Alcan in connection with the supply of aluminum rod for processing into cable. It was alleged that Alcan acted as a monopolist, as defined by Section 2 of the Combines Investigation Act in its dual role as both the price leader in the aluminum wire and cable industry, and as the major supplier to the industry of electrical conductor grade aluminum rod, which is the chief input used in the manufacture of aluminum wire and cable. Because of this situation, it was alleged that Alcan held the non-integrated cable companies in a price-squeeze, and that Alcan was effective in this practice through its power to administer rod and cable prices.
2. Fortune, August 1975, p. 157.
3. Financial Post, July 26, 1975, p. 13.
4. Alcan Aluminium Limited, Form 10-K, filed with Securities and Exchange Commission, Washington, D.C. for the fiscal year ended December 31, 1974, p. 1.
5. See Chapter 2 for details of antitrust decisions.
6. See The New Industrial State, (Boston: Houghton Mifflin Company, 1967).
7. A.D. Chandler, Strategy and Structure, (Cambridge: M.I.T. Press, 1962).
8. See Bruce R. Scott, "The Industrial State: Old Myths and New Realities", Harvard Business Review, March-April, 1973.
9. See I.A. Litvak and C.J. Maule, "Cartel Strategies In the International Aluminum Industry", The Antitrust Bulletin, Vol. XX, No. 3, Fall 1975, pp. 641-663.
10. Wall Street Journal, July 6, 1976, p. 33.
11. For example, see M. Anshen, "Changing the Social Contract: A Role for Business", Columbia Journal of World Business, November-December 1970, pp. 6-14.
12. Neil W. Chamberlain, The Limits of Corporate Social Responsibility, (New York: Basic Books, Inc., 1973), pp. 5-6.

## NOTES TO CHAPTER 2

### HISTORICAL EVOLUTION OF ALCAN

1. A.C. Cooper, "Incubator Organization, Spin-Offs, and Technical Entrepreneurship", Proceedings of The Indiana Academy of the Social Sciences, 1969, 3rd Series, Vol. 4, April 1970, p. 33.
2. A.C. Cooper, "The Palo Alto Experience", Industrial Research, May 1970, pp. 58-60.
3. Paul Clark, Rivers of Aluminum: The Story of Alcan, (Montreal, Alcan Aluminium Limited, 1964), Vol. I, p. 13.
4. D.H. Wallace, Market Control in the Aluminum Industry, (Cambridge: Harvard University Press, 1937), p. 26, fn. 7.
5. See C.C. Carr, Alcoa, An American Enterprise, (New York: Rhinehart and Co. Inc., 1952), pp. 14-30.
6. Aluminium Panorama, (Montreal: Aluminium Limited, 1953), p. 11.
7. Wallace, op. cit., pp. 527-537.
8. Carr, op. cit., pp. 35, 36 and 39.
9. U.S. v. Aluminum Company of America, 44 Fed.Supp. 309.
10. Ferdinand Lundberg, The Rich and The Super-Rich, (New York: A Bantam Book, 1968), p. 180.
11. Carr, op. cit., pp. 40, 43 and 44.
12. Clark, op. cit., p. 25.
13. Carr, op. cit., p. 85.
14. Clark, op. cit., p. 26.
15. Ibid., p. 25.
16. Ibid., pp. 47-49 and Carr, op. cit., pp. 88-89.
17. Clark, op. cit., p. 51.
18. Ibid., p. 64.
19. Ibid., p. 60.
20. Ibid., p. 70.
21. Ibid., p. 70.
22. Ibid., p. 73.
23. J.K. Galbraith, The New Industrial State, (Boston: Houghton Mifflin Company, 1967), p. 28.
24. Clark, op. cit., pp. 76-77.

## NOTES TO CHAPTER 2

(continued)

25. Ibid., p. 86.
26. Aluminium Panorama, p. 65.
27. Clark, op. cit., p. 88.
28. Albert W. Whitaker, Aluminum Trail, (Montreal: Alcan Press, 1974), p. 403.
29. Alcan press release No. 15, 1945; and Report of Commissioner, Combines Investigation Act, Canada and International Cartels, (Ottawa: King's Printer, 1945), pp. 34-35.
30. Aluminium Limited, Annual Report for Year ending December 31st, 1950, p. 23.
31. "Progress Via Express", The Compass, March-April 1962, pp. 11-13.
32. Aluminium Panorama, p. 20.
33. Ibid., p. 18.
34. Ibid., p. 18.
35. Ibid., p. 9.
36. Merton J. Peck, Competition in the Aluminum Industry, (Cambridge: Harvard University, 1961), p. 9.
37. Clark, op. cit., pp. 94-95.
38. Aluminium Panorama, p. 19.
39. Aluminium Limited, Fifth Annual Report, 13th April, 1933.
40. Aluminium Limited, Sixth Annual Report, 12th April, 1934.
41. Aluminum Limited in Quebec, company documents, p. 4.
42. Ibid., pp. 4-6.
43. Whitaker, pp. 158-159.
44. Aluminium Limited, Nineteenth Annual Meeting of Shareholders (1947), April 24, 1947, p. 5.
45. Ibid., p. 5.
46. Ibid., p. 5.
47. Ibid., p. 5.
48. Aluminum Industry Report, (New York: Hayden, Stone & Co., June 1963), p. 19.

## NOTES TO CHAPTER 2

(continued)

49. An Analysis of the Aluminum Industry in North America, (New York: Dominick & Dominick, September 1962), p. 32.
50. Nathanael V. Davis, "A Message for 1960", The Compass, January-February 1960, p. 4.
51. Ibid., pp. 3-4.
52. Whitaker, p. 263.
53. Ibid., pp. 263-4.
54. Ibid., p. 275.
55. "Kitimat: 10 Years Later", The Compass, July-August 1964, p. 5.
56. Ibid., p. 5.
57. Whitaker, p. 284.
58. "Kitimat: 10 Years Later", op. cit., p. 7.
59. Whitaker, op. cit., p. 347.
60. Ibid., p. 346.
61. Oppenheimer & Co., Company Report: Alcan Aluminium Limited, (New York: June 1, 1973), pp. 6-7.
62. Ibid., p. 7.
63. G.W. Stocking and M.W. Watkins, Cartels in Action, (New York: Twentieth Century Fund), 1946, pp. 257-260 and L.W. Weiss, Economics and American Industry, (New York: Wiley, 1961), p. 217.
64. O.E. Williamson, "The Vertical Integration of Production Market Failure Considerations", American Economic Review, May 1971, p. 112.
65. Weiss, op. cit., p. 205.
66. Stocking and Watkins, op. cit., pp. 227-273.
67. Ibid., p. 241.
68. U.S. v. Alcoa, 91F, Supp. 333, June 2, 1950.
69. Stocking and Watkins, op. cit., p. 239.
70. Full justice to this topic can only be given by reading the original opinion of Judge Knox in U.S. v. Aluminum Co. of America, 91F.Supp.333 (87 pages), June 2, 1950. The following summary is based on this judgment.



NOTES TO CHAPTER 2

(continued)

- 71. Ibid., pp. 397-398.
- 72. Ibid., p. 398.
- 73. Ibid., p. 405.
- 74. Ibid., p. 410.
- 75. Stocking and Watkins, op. cit., pp. 257-260.

### NOTES TO CHAPTER 3

#### CORPORATE STRATEGY AND STRUCTURE

1. A.D. Chandler, Strategy and Structure, (Cambridge: M.I.T. Press, 1962), p. 13.
2. See Dominick & Dominick, An Analysis of the Aluminum Industry in North America, (New York: September, 1962), 36 pp.
3. N.V. Davis, "Alcan now Stronger, Sounder after Decade of Growth, Change", The Compass, June 1967, p. 4.
4. Oppenheimer & Co., Company Report: Alcan Aluminium Limited, (New York: June 1, 1973), p. 11.
5. Ibid., p. 10.
6. N.V. Davis, speech made to the Cleveland Society of Security Analysts on May 5, 1971, pp. 1 and 2.
7. "Marketing Myopia", Harvard Business Review, September-October 1975, p. 27.
8. "Challenges and Opportunities", The Compass, January-February, 1964, p. 4.
9. Nathanael V. Davis, Report of the 25th Annual Meeting, Montreal, April 30th, 1953, pp. 4 and 5.
10. Albert W. Whitaker, Aluminum Trail, (Montreal: Alcan Press, 1974), p. 343.
11. Speech made to the Cleveland Society of Security Analysts, on May 5, 1971, p. 6.
12. Aluminum Company of Canada, Ltd., Submission to the Canadian Trade and Tariffs Committee, July 30, 1975, p. 14.
13. Alcan Aluminium Limited, Quarterly Report, March 31, 1968, p. 5.
14. From statement by the Aluminum Association Foreign Trade Committee on the Proposed Aluminum Trade Pact between the United States and Canada, New York, May 20, 1968.
15. Aluminum Company of Canada Ltd., Submission to the Canadian Trade and Tariffs Committee, July 30, 1975, pp. 5-6.
16. Ibid., p. 21.
17. "The Jury finds for the Defence", The Compass, Sept. 1973, p.3.
18. Wood Gundy Limited, Prospectus on Aluminum Company of Canada, Limited, Toronto, Nov. 5, 1975, p. 7.

### NOTES TO CHAPTER 3

(continued)

19. "Related company" indicates a company owned 50% or less, whereas "subsidiary" means a company owned directly or indirectly more than 50% by Alcan.
20. Wood Gundy Limited, op. cit., p. 17.
21. Stewart R. Spector, Aluminum Industry Report, (New York: Oppenheimer & Co., September 1973), p. 16.
22. Wood Gundy Limited, op. cit., pp. 5-6.
23. Company published documents.
24. Wood Gundy Limited, op. cit., pp. 7-8.
25. Ibid., p. 8.
26. Presentation before the Cleveland Society of Security Analysts, May 5, 1971, pp. 2 and 3.
27. See Paul H. Leman, remarks on Foreign Ownership before the Association of Professional Economists of British Columbia, Vancouver, September 28, 1972.
28. David M. Culver, speech made to the Montreal Society of Financial Analysts, on January 13, 1971, p. 7.
29. A.D. Chandler, op. cit., p. 14.
30. Peter F. Drucker, "New Templates for Today's Organization", Harvard Business Review, January-February 1974, pp. 52-53.
31. J.M. Stopford and L.T. Wells, Jr., Managing the Multinational Enterprise, (New York: Basic Books, Inc., 1972), p. 82.
32. Bruce R. Scott, "The Industrial State: Old Myths and New Realities", Harvard Business Review, March-April 1973, p. 141.
33. A.D. Chandler, op. cit., pp. 14 and 15.
34. E. Raymond Corey and Steven H. Starr, Organizational Strategy, (Cambridge, Mass.: Harvard School of Business Administration, Division of Research, 1971), p. vii.
35. "The Group Organization", The Compass, March 1960, p. i.
36. Ibid., p. 3.
37. Ibid., p. 3.
38. Ibid., p. 8.
39. Ibid., pp. 4-8.

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(continued)

40. Ibid., p. 11.
41. Ibid., p. 17.
42. Ibid., p. 6.
43. Ibid., p. 7.
44. Ibid., p. 8.
45. Ibid., p. 6.
46. Exceptions to the \$25,000 limit were: Alcan (\$100,000); and Demba, Alindustries, Aljam, Alubrasil, Aluminas (>50,000).
47. "The Group Organization", op. cit., pp. 18-19.
48. "Alcan Goes More International", The Economist, September 6, 1969, pp. 48 and 49.
49. "Reorganization", The Compass, December 1967, p. 3.
50. R. Vernon, Sovereignty at Bay, (New York: Basic Books, Inc., 1971), p. 119.
51. "Reorganization", op. cit., p. 3.
52. Ibid., p. 2.
53. R. Vernon, op. cit., p. 119.
54. Ibid., p. 119.
55. "Reorganization", op. cit., p. 3.
56. Ibid., p. 3.
57. Stopford and Wells, op. cit., p. 18.
58. Ibid., p. 18.
59. "Reorganization", op. cit., p. 6.
60. Ibid., p. 6.
61. Ibid., p. 12.
62. Ibid., p. 12 (Saguenay Shipping Limited and Magnesium Company of Canada).
63. Ibid., p. 13.
64. Ibid., p. 4.
65. Bruce R. Scott, op. cit., p. 141.



### NOTES TO CHAPTER 3

(continued)

66. "At Head Office--The Shape of Things to Come", The Compass, March 1972, p. 3.
67. "Towards an Integrated Technological Effort", The Compass, April 1971, p. 4.
68. The material in this section is drawn from "A Message from Chairman and Chief Executive Officer", The Compass, May-June 1975, pp. 3 and 4.
69. Bruce R. Scott, op. cit., p. 138.
70. Ibid., p. 138.

NOTES TO CHAPTER 4  
CORPORATE IMPACT ON CANADA

1. Statistics Canada, Industrial Organization and Concentration in the Manufacturing, Mining and Logging Industries, 31-514 Information Canada, 1973, p. 17.
2. In 1976, Alcan is involved in one antitrust investigation in the U.S., concerning whether there has been a violation of price fixing provisions of the law re aluminum and aluminum products, and one action under the Canadian Combines Investigation Act, concerning a possible Sec. 32(1)(C) violation concerning extruded aluminum.
3. F.M. Scherer, Industrial Market Structure and Economic Performance, (Chicago: Rand McNally & Co., 1973), pp. 273-283.
4. Daniel Bell, "The Corporation and Society in the 1970s", Public Interest, Summer 1971, No. 24, p. 10.
5. Ibid., p. 13.
6. Edward S. Mason, The Corporation in Modern Society, (Cambridge: Harvard University Press, 1960), pp. 94-95.
7. Bell, op. cit., pp. 17 and 18.
8. Alcan Aluminium Ltd., Form 10-K, SEC, Washington, 1976.
9. This figure has fluctuated widely in recent years, e.g.: 1971 - 62%; 1972 - 44%; 1973 - 6%; 1974 - 38%.
10. Alcan has published for 1973 and 1974 an alternative set of accounts showing the distortions created by inflation which are dependent on the firm's structure of assets and liabilities - see Annual Report 1974.
11. B.R. Scott, "The Industrial State: Old Myths and New Realities", Harvard Business Review, March-April 1973, pp. 144-145.
12. R. Tillman and C.P. McLaughlin, "Six Executives on Galbraith", Harvard Business Review, May-June 1974, p. 24.
13. Charles River Associates, An Economic Analysis of the Aluminum Industry, (NTIS, U.S. Department of Commerce, March 1971), pp. 2-37.
14. Globe and Mail, April 3, 1976, p. B12.
15. A pot line has about 25,000 tons capacity, based on data in Exhibit 8.
16. Oppenheimer & Co., Company Report: Alcan Aluminium Ltd., (New York: June 1, 1973), p. 3.

## NOTES TO CHAPTER 4

(continued)

17. Port Alfred handles about 400 shipmovements and six million tons of cargo annually.
18. Globe and Mail, June 25, 1976, p. B7.
19. Foreign Direct Investment in Canada, (Ottawa: Information Canada, 1972), p. 96.
20. I.A. Litvak, C.J. Maule and R.D. Robinson, Dual Loyalty: Canadian-U.S. Business Arrangements, (Toronto: McGraw-Hill, 1971), p. 81.
21. The Supply of and Demand for Canadian Equities, Toronto Stock Exchange, Sept. 1968, pp. 31-32.
22. K. Dennis, "Market Power and the Behavior of Industrial Prices", in Prices and Incomes Commission, Essays on Price Changes, (Information Canada, 1973), pp. 53-91.
23. Oppenheimer & Co. Inc., Aluminum Industry Report, New York, March 1975, p. 18.
24. From "The Social Responsibility of Business Is to Increase Its Profits", in The Sunday Times Magazine, September 13, 1970.
25. Bell, op. cit., pp. 24-25.
26. This situation is not unique to Alcan in the aluminum industry in that family influences are strong in Kaiser, Reynolds and to some extent Alcoa. The importance of families seems to be associated with 'dominant vertical' firms where there has been little diversification away from the principal product produced by the firm.
27. See Forbes, May 15, 1975, pp. 234-252. Remuneration included salary, bonus, director's fees and deferred compensation, and excluded stock options.
28. Business Week, August 25, 1975.
29. Report of Alcan Annual Meeting 1975.
30. This situation prevails in business generally. Among 2500 presidents, key vice presidents and chairpersons who direct major U.S. corporations, there are 15 women - see Business Week, Nov. 24, 1975, p. 58.
31. Data from Strikes and Lockouts in Canada, various issues, and Labour Canada files.

## NOTES TO CHAPTER 4

(continued)

32. See M. Cotterhill, "Unity in Aluminum", Canadian Labour, Vol. 3, No. 1, 1958, pp. 14-16.
33. Vancouver Sun, Dec. 31, 1975, and The Evening Telegram, (St. John's), June 21, 1975.
34. R. Legget, "The Arvida Strike", Queen's Quarterly, Vol. 49, 1942, pp. 337-347.
35. Globe and Mail, August 23, 1973.
36. Material drawn for case study prepared for School of Business Administration, University of Western Ontario.
37. "Solving the Problem of Supply", The Compass, Vol. XX, No. 4, June-July 1976, p. 7.
38. Compass, May 1971, pp. 3 and 4 and Company documents.



APPENDIX A

STATISTICAL AND OTHER DATA

TABLE A-1  
ALCAN ALUMINIUM LIMITED AND  
CONSOLIDATED SUBSIDIARIES (1959-75)

OPERATING DATA (in thousands of tons)	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Aluminum sales by consolidated subsidiaries										
Ingot and ingot products	440	487	429	471	531	508	503	561	563	614
Fabricated products	206	229	242	259	331	354	490	554	541	606
Total	646	716	671	730	862	862	993	1,115	1,104	1,220
Fabricated product sales by all subsidiary and affiliated companies	265	310	346	370	497	590	633	724	703	805
Production of primary aluminum										
Canada	517	672	569	596	626	740	728	788	878	873
Subsidiary and affiliated companies outside Canada	141	156	171	194	214	245	269	286	521	588
CONSOLIDATED INCOME STATEMENT ITEMS (in millions of \$)										
Revenues										
Sales of aluminum ingot and ingot products	186	209	192	211	232	236	242	272	270	291
Sales of aluminum fabricated products	179	207	226	250	326	358	497	565	556	601
Sales of all other products	25	29	34	35	51	68	86	97	103	128
Operating revenues	55	56	57	55	57	65	68	68	64	61
Equity in income of companies 50% owned	2	3	4	3	3	4	3	3	7	7
Other income	4	12	3	7	4	6	6	5	8	14
Income before income taxes	451	516	516	561	673	737	902	1,010	1,008	1,102
Provision for income taxes	49	76	62	75	71	105	129	145	117	139
Preferred dividends (including subsidiaries') and minority interests	20	31	24	31	32	48	60	63	48	64
Net income for common stock	4	4	4	5	6	8	9	7	7	6
	25	41	33	39	33	49	60	75	63	69

TABLE A-1  
(continued)

CONSOLIDATED BALANCE SHEET ITEMS (in millions of \$)	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Working capital	221	212	216	236	298	297	331	332	431	345
Property, plant and equipment (net)	949	958	950	951	955	951	1,024	1,069	1,107	1,120
Investments in companies not consolidated	30	37	48	54	56	63	58	58	122	164
Long-term debt	578	557	559	565	552	526	587	579	699	630
Deferred income taxes	125	132	131	130	134	135	137	146	150	148
Subsidiaries' preferred shares and minority interests	77	76	78	79	78	79	83	82	82	85
Shareholders' equity	445	470	464	484	565	593	626	684	756	790
Total assets	1,326	1,369	1,375	1,414	1,485	1,512	1,645	1,736	1,911	1,954
PER SHARE OF COMMON STOCK (in Canadian dollars)										
Net income (after preferred dividends)	0.84	1.34	1.08	1.27	1.07	1.57	1.93	2.41	1.94	2.14
Dividends paid	0.53	0.68	0.61	0.64	0.65	0.70	0.89	1.00	1.08	1.11
Cash generation	2.62	3.25	2.87	3.17	3.16	3.74	4.32	5.09	4.54	4.72
Book value	14.64	15.73	15.13	15.77	16.27	17.16	18.21	20.04	21.58	22.61
OTHER STATISTICS										
Capital expenditures (in millions of \$)	66	72	81	66	70	72	143	122	190	146
Cash generation (in millions of \$)	80	99	88	97	99	119	137	161	149	155
Return on average equity (as a percentage)	5.8	8.9	7.1	8.2	6.6	8.9	10.2	11.9	9.0	9.3
Number of common stock shareholders at year end (thousands)	65	61	54	54	51	50	52	57	67	73
Number of employees at year end (thousands)	45	49	47	50	53	54	60	64	63	61

TABLE A-1  
(continued)

OPERATING DATA (in thousands of tons)	1969	1970	1971	1972	1973	1974	1975
Aluminum shipments by consolidated subsidiaries							
Ingot and Ingot products	742	655	626	592	663	644	617
Fabricated products	621	691	772	859	1,013	1,018	785
	<u>1,363</u>	<u>1,346</u>	<u>1,398</u>	<u>1,451</u>	<u>1,676</u>	<u>1,662</u>	<u>1,402</u>
Fabricated products shipments by all subsidiary and related companies	862	937	1,033	1,177	1,376	1,417	1,130
Production of primary aluminum							
Canada	969	903	945	880	872	963	838
Subsidiary and related companies outside Canada	720	849	935	981	1,146	1,211	1,178
CONSOLIDATED INCOME STATEMENT ITEMS (in millions of U.S. dollars)							
Revenues							
Sales of aluminum ingot and ingot products	342	321	284	267	318	448	441
Sales of aluminum fabricated products	611	723	821	922	1,191	1,489	1,370
Sales of all other products	224	268	277	266	306	400	419
Operating revenues	48	52	49	56	57	75	72
Other income	14	10	10	18	19	15	11
	<u>1,239</u>	<u>1,374</u>	<u>1,441</u>	<u>1,529</u>	<u>1,891</u>	<u>2,427</u>	<u>2,313</u>
Costs and expenses							
Cost of sales and operating expenses	864	988	1,062	1,161	1,452	1,824	1,840
Depreciation and depletion	83	94	98	94	101	103	111
Interest charges	50	60	64	69	79	100	105
All other expenses (except income taxes)	99	113	123	126	148	175	187



TABLE A-1  
(continued)

	1969	1970	1971	1972	1973	1974	1975
Income Taxes	65	54	38	20	35	85	27
Equity in net income of companies 20-50% owned	11	11	9	8	18	11	(13)
Extraordinary gains	-	9	-	-	-	27	12
Minority interests	4	4	5	6	11	9	7
Net income	85	81	60	61	83	169	35
CONSOLIDATED BALANCE SHEET ITEMS (in millions of U.S. dollars)							
Working capital	384	444	401	468	442	641	766
Property, plant and equipment (net)	1,130	1,223	1,224	1,234	1,217	1,329	1,385
Investments in companies owned 50% or less	177	170	174	178	199	212	215
Long-term debt	668	751	740	798	744	881	971
Deferred income taxes	144	150	142	130	123	161	166
Minority interests	92	112	114	114	106	116	163
Shareholders' equity	808	847	872	904	957	1,093	1,112
Total assets	2,047	2,215	2,297	2,370	2,449	2,979	3,012
PER COMMON SHARE (in U.S. dollars)							
Income (after preferred dividends but before extraordinary gains)	2.52	2.11	1.75	1.78	2.42	4.11	0.65
Extraordinary gains	-	0.27	-	-	-	0.79	0.36
Income (after preferred dividends)	2.52	2.38	1.75	1.78	2.42	4.90	1.01
Dividends paid	1.12	1.20	1.00	0.80	0.90	1.20	0.90
Book value	22.85	24.03	24.78	25.76	27.71	31.41	31.36
OTHER STATISTICS							
Capital expenditures (net of government development grants - in millions of U.S. dollars)	156	165	153	115	117	268	208
Funds generated from operations (millions of U.S. dollars)	165	178	157	140	163	275	156
Return on average equity (as a percentage)	11.0	9.8	7.0	6.9	8.9	16.5	3.2
Number of common shareholders at year end (thousands)	72	76	70	64	50	48	47
Number of employees at year end (thousands)	62	67	61	62	62	64	61

Source: Alcan publications.

TABLE A-2  
BREAKDOWN OF ALCAN ALUMINIUM LTD.'S ALUMINIUM SALES  
(PPrimary Ingot, Fabricating Sales;Customers&Group)

Year	Sales	Total Alum.		Est.		Est.		Est.		Aluminium	
		Fabricated Sales	Total Alum. Ingot Sales	Alum. Ingot Sales to Other Products	Alum. Ingot Sales to Ind. Fabricators	Alum. Ingot Sales to Affiliated Fabricators	Est. Alum. Ingot Sales to Ind. Fabricators	Est. Alum. Ingot Sales to Affiliated Fabricators	Ltd. Group Alum. Fabricating Sales		
1951	478	155	323	145	178	NA	NA	NA	NA		
1952	538	163	375	120	255	NA	NA	NA	NA		
1953	598	146	452	215	237	NA	NA	NA	NA		
1954	592	157	435	220	215	NA	NA	NA	NA		
1955	681	169	512	250	262	NA	NA	NA	NA		
1956	705	172	533	303	230	NA	NA	NA	200	26	
1957	614	164	450	275	175	NA	NA	NA	208	44	
1958	581	180	401	185	216	NA	NA	NA	230	50	
1959	643	206	437	128	309	NA	NA	NA	265	59	
1960	705	229	476	64	412	NA	NA	NA	310	81	
1961	664	242	422	25	397	22	375	375	346	104	
1962	729	259	470	72	398	47	351	351	375	111	
1963	862	331	531	26	505	95	410	410	507	176	
1964	863	355	508	25	483	90	393	393	579	224	
1965	993	490	503	48	455	32	423	423	629	139	
1966	1,115	554	561	29	532	30	502	502	725	171	
1967	1,104	541	563	36	527	45	482	482	701	160	
1968	1,220	606	614	11	603	55	548	548	800	194	
1969	1,363	621	742	10	732	100	632	632	862	241	
1970	1,346	691	655	25	630	65	565	565	937	246	
1971	1,398	772	626	12	614	65	549	549	1,033	261	
1972	1,451	859	592	12	580	20	560	560	1,167	308	

NA - Not Available

Source: Aluminium Ltd. Annuals & Prospectus Reports.

TABLE A-3  
INTERNATIONAL OPERATIONS OF ALCAN

Location of Assets - \$ million and percentages

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Canada	757 (41)	776 (40)	743 (39)	953 (42)
U.S.A.	242 (13)	245 (13)	217 (11)	241 (11)
South America & Caribbean	253 (14)	256 (13)	270 (14)	289 (13)
United Kingdom	215 (12)	218 (11)	257 (13)	284 (13)
Continental Europe	155 (8)	198 (10)	204 (11)	207 (9)
Other	246 (13)	253 (13)	238 (12)	282 (13)
TOTAL	1868 (100)	1946 (100)	1929 (100)	2256 (100)

Location of Sales of Aluminum - thousands of tons and percentages

Canada	189 (14)	195 (13)	235 (14)	248 (15)
U.S.A.	387 (28)	416 (29)	480 (29)	452 (27)
U.K.	186 (13)	210 (14)	265 (16)	287 (17)
E.E.C. less U.K.	148 (11)	172 (12)	208 (12)	207 (12)
All Others	488 (35)	458 (32)	488 (29)	468 (28)
TOTAL	1398 (100)	1451 (100)	1676 (100)	1662 (100)

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Source: Alcan Publications

TABLE A-4

## LABOUR FORCE: DISTRIBUTION BY COUNTRY AND/OR REGION

	<u>1960</u>	<u>(%)</u>	<u>1965</u>	<u>(%)</u>	<u>1970</u>	<u>(%)</u>	<u>1975*</u>	<u>(%)</u>
Africa	1,687	3.40	1,870	3.11	1,977	2.94	224	0.36
Asia	4,489	9.07	5,444	9.06	7,030	10.48	7,399	11.79
Canada	19,010	38.41	17,985	29.92	18,768	27.94	20,933	33.36
Caribbean	8,394	16.96	9,008	14.99	9,697	14.44	3,313	5.28
Europe	4,545	9.19	6,819	11.34	5,761	8.57	6,617	10.54
Latin America	3,465	7.00	5,785	9.63	6,418	9.55	8,274	13.18
Oceania	--	--	2,244	3.73	2,122	3.16	--	--
South Pacific	--	--	--	--	--	--	3,221	5.13
United Kingdom	7,639	15.44	7,885	13.12	10,700	15.93	8,516	13.57
United States	217	0.44	3,090	5.10	4,692	6.99	4,261	6.79
Other	43	0.09	--	--	--	--	--	--
	<u>49,489</u>	<u>100%</u>	<u>60,130</u>	<u>100%</u>	<u>67,165</u>	<u>100%</u>	<u>62,758</u>	<u>100%</u>

\* Figures of third quarter of 1975

Source: Alcan Aluminium Limited.



TABLE A-5

TRADE UNION AGREEMENTS WITH ALCAN CANADA BY EMPLOYEES, 1974-75

<u>Union Name</u>			<u>Affiliation</u>
1. Federation Syndicat Secteur Aluminum			Independent
Arvida	5017		
	552		
	37	5606	
Alma	825		
	49		
	269	1143	
Port Alfred	450		
	42		
	10	502	
Shipshaw	225		
	38	263	
		<hr/>	
		7514	
2. United Steel Workers of America			CLC/AFL-CIO
Kingston	1000		
Aurora	160		
Richmond	72	1232	
3. Federation of Metal Trades, Mines and Chemical Products Union			C.N.T.U.
Shawinigan	820		
St. Lawrence	375	1195	
4. Canadian Association of Smelter and Allied Workers			Congress of Canadian Unions (CCU)
Kitimat	2000	2000	
5. International Association of Machinists and Aerospace Workers			CLC/AFL-CIO
Kingston	300	300	
6. International Association of Bridge, Structural and Ornamental Iron Workers			CLC/AFL-CIO
New Westminster	73		
Kelowna	17	90	

TABLE A-5

(continued)

7. International Printing and Graphic  
Communications Union

CLC/AFL-CIO

Toronto	114	114
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8. Locals independently chartered by CLC

Toronto	134	
Bracebridge	107	241

TOTAL	12,686	
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Source: Collective Agreements files, Labour Canada and  
Labour Organizations in Canada, 1974-75.

TABLE A-6  
STRIKES AND LOCKOUTS IN THE PRIMARY METAL INDUSTRY  
- ALCAN CANADA, 1941-1976

<u>Location</u>	<u>Date</u>	<u>Days lost</u>	<u>Major Cause</u>
Arvida	1941	3	wages, bonuses, poor grievance procedures, heat <sup>a</sup>
Arvida	1954	1	interference with union stewards <sup>b</sup>
Arvida	1957	84	wages and a master contract for the Arvida area, (This has been achieved.) working conditions
Arvida	1954	16	wages and fringe benefits (office workers) <sup>b</sup>
Arvida	1973	3	wages, union rivalry - workers also engaged in rotating strikes and a slowdown for a month preceding the strike <sup>b,c,d</sup>
Arvida	1973	5	grievance concerning job definition and evaluation <sup>c</sup>
Arvida	1975	30	slowness in solving organizational problems
Shawinigan	1951	37	job evaluation and seniority <sup>b</sup>
Shawinigan	1966	1	
Shawinigan	1973	3	wages, fringe benefits and union rivalry <sup>c,d</sup>
Richmond	1968	5	
Richmond	1970-71	90	refusal to negotiate on the part of the company <sup>b,c</sup>
Kitimat	1970	72	wages and fringe benefits <sup>b</sup>
St. Lawrence Mine	1971	102	wages and fringe benefits <sup>b</sup>
St. Lawrence Mine	1972	3	demotion of one worker <sup>b</sup>
St. Lawrence Mine	1972	1	
St. Lawrence Mine	1973	24	wages <sup>b</sup>

TABLE A-6  
(continued)

St. Lawrence Mine	1975-76	160	wages, fringe benefits and more healthy working conditions <sup>e</sup>
Kingston	1949	3	wages and union check-off
Kingston	1964	18	wages, contracting out, job jurisdiction <sup>b</sup>
Scarborough	1973	11	wages, fringe benefits
TOTAL		<u>642</u>	

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Note: Labour Canada does not distinguish between strikes and lockouts in their files or publications although sometimes there is evidence. Only the St. Lawrence strike (1975-1976) was clearly a lockout though this was in part a response to the fact that the wives of the workers boycotted the loading of a ship loading materials for Alcan.

Source: <sup>a</sup>Labour Gazette; <sup>b</sup>Strikes and Lockouts in Canada;  
<sup>c</sup>Labour Canada strike files; <sup>d</sup>Globe and Mail, August 23, 1973; <sup>e</sup>The Evening Telegram, St. John's, June 21, 1975; company documents.



TABLE A-7

ALCAN ALUMINIUM LTD.

List of Institutions receiving Donations of  
\$10,000 or More During the Year 1971

Acadia University	\$ 2,000.
Alberta Three Universities Fund	5,000.
Dalhousie University	5,000.
Exporama (Youth Pavillion at Man & His World)	20,000.
Federated Appeal	55,050.
Guelph University	5,000.
Lakehead University	5,000.
Laval University	30,000.
Mackenzie High School Trust	57,676.
Manchester Preparatory School	17,599.
McMaster University	5,000.
Mount Allison University	5,000.
National Defense Fund (India)	69,300.
Oswego Hospital Building Fund	12,012.
Oxford University Foundation of Canada	10,000.
Prime Minister's Vocational Training Fund (Jamaica)	76,518.
Private Planning Association of Canada	11,500.
Queen's University	15,000.
St. Mary's Hospital	5,000.
Toronto East General Hospital	2,500.
Trent University	5,000.
United Appeal	26,450.
United Fund	32,977.
Université de Québec à Chicoutimi	5,000.
University of British Columbia - Geological	8,333.
University of Montreal	40,000.
University of Saskatchewan	4,000.
University of the West Indies	16,579.
University of Waterloo	5,000.
University of Western Ontario-School of Business	5,000.
University of Windsor	2,000.
Y.M.C.A. - Canada	24,000.
All Other Donations	383,403.
TOTAL	<u>\$971,896.</u>

Source: Alcan Publications.

EXHIBIT A-1

ALCAN'S ENTRY INTO UNITED STATES

- 1942 Aluminum Company of Canada signs agreement with U.S. government to provide 453,597 tons of primary aluminum for the war effort.
- 1944 Aluminum Import Corporation, New York, formed to sell aluminum ingot to U.S. industry. This organization later renamed Aluminium Limited Sales, Inc., and then Alcan Sales. It is now a division of Alcan Aluminum Corporation.
- 1951 Alcan sells aluminum certificates to U.S. industry for future metal delivery on demand.
- 1953 Alcan signs contract to supply large tonnages of ingot to Alcoa and Kaiser.
- 1961 Alcan joins with three partners, Scovill Manufacturing Company, National Distillers and Chemical Corporation, and Cerro Corporation, to construct a 200,000-ton hot rolling mill at Oswego, New York.
- 1963 Alcan acquires Central Cable Corporation (now Alcan Cable Division), a leading U.S. manufacturer of electric power cables and wire. The company has plants in Pennsylvania and Georgia.

Metals Disintegrating Corporation (now Alcan Metal Powders Division), acquired by Alcan. The company is the leading manufacturer of finely divided nonferrous metals in the U.S., with plants in New Jersey and California. A special facility to produce spherical aluminum powder is constructed in California.

- 1965 Alcan Aluminum Corporation organized in January with acquisition of aluminum facilities of National Distillers and Chemical Corporation, and Cerro Corporation, including their interests, plus those of Scovill Manufacturing Company, in the Oswego, New York plant. Headquarters for the new organization: Cleveland, Ohio.

\$1.25 million expansion and modernization program started at Fairmont, West Virginia sheet plant.

EXHIBIT A-1  
(continued)

1967 New \$3 million high speed continuous paint line for aluminum sheet begins operation at Alcan's plant in Warren, Ohio. The tradename Spectrum 21 is developed for use with coated products.

Construction started for 300,000 square foot cold rolling mill adjacent to hot rolling mill at Oswego, New York.

Fabral Corporation formed as an affiliate (50 per cent owned) of Alcan Aluminum Corporation, to manufacture metal roofing and siding for rural, commercial, and industrial buildings at a plant in Lancaster, Pennsylvania.

Alcan Building Products Division formed to consolidate manufacturing and marketing operations for a broad range of residential and commercial improvement products.

Alcan's first mobile home service center opened in Kings Mountain, North Carolina.

1968 High-speed, light-gauge sheet mill installed at Fairmont, West Virginia, plant, to produce foil and near-foil sheet products.

Alcan Cable introduces Self-Damping Conductor that controls low-frequency vibrations in utility lines.

Production begins at new 15,000 ton cable plant at Rocklin, California, and at 60,000 ton capacity rod plant at Williamsport, Pennsylvania.

1969 Alcan acquires Metal Goods Corporation, a leading metals distributor. It becomes a division with headquarters in St. Louis and 16 service centers in major marketing areas.

Operations begin at new 238,000 square foot plant in Woodbridge, New Jersey. It produces a broad range of aluminum building products and components.

Metal Goods' Philadelphia Service Center moves into new 80,000 square foot office and warehouse.

Atlanta service center is opened by Metal Goods Division.

EXHIBIT A-1  
(continued)

1970     Fabral doubles production space at its Lancaster plant.

Alcan enters foil container and housewares market with acquisition of Chicago Metallic Manufacturing Company, Lake Zurich, Illinois. This is now Alcan Metallic Division.

New cold mill at Oswego, New York, achieves rolling speeds of nearly 100 miles an hour, believed to be fastest for any metal in the world. The \$40 million cold mill has 100,000 ton capacity.

Los Angeles service center opened by Metal Goods. Division now has coast-to-coast operations.

1971     Alcan Building Products opens mobile home service centers at Lakeland, Florida, and Muscle Shoals, Alabama.

1972     Alcan Western Products opens service centers in Tempe, Arizona and Portland, Oregon.

Alcan Cable West, Rocklin, California established as a separate division to serve 13 western states.

Two more mobile home service centers in Elsie, Michigan, and Kingston, Pennsylvania, are added by Alcan Building Products.

Alcan acquires majority interest in V.E. Anderson Manufacturing Company, Owensboro, Kentucky, a producer of aluminum windows and doors. It has four plants and nine warehouse service centers.

1973     Metal Goods opens three new service centers, in Chicago, Illinois; Midland, Michigan; and Freeport, Texas.

An 86,000 square foot Alcan Building Products plant to produce aluminum siding for the Midwest residential market begins operations in Indianapolis.

Alcan Building Products opens its sixth mobile home service center in Goshen, Indiana.

Major expansion of hot and cold rolling operations at Oswego, New York works of Alcan Sheet and Plate begins.



EXHIBIT A-1  
(continued)

- 1973 Hot rolling capacity will be increased by 100,000 tons, and a second 100,000 ton cold rolling mill will be installed.
- 1974 Alcan Buildings Products' newest facility, an 80,000 square foot manufacturing plant and warehouse for exterior products, begins operations near Charlotte, North Carolina. All manufacturing operations for the division's lines of residential and commercial canopies, carports, patio covers, awnings, and mobile home exterior accessories are consolidated there.

Fabral Corporation opens a new plant in Gridley, Illinois, to manufacture rural building products for Midwest farm markets.

Three more mobile home service centers, in Holmesville, Ohio; Elkhart, Indiana; and Arlington, Texas, are acquired by Alcan Building Products.

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Source: Alcan Publications.

EXHIBIT A-2

SELECTED INVESTMENTS BY ALCAN CANADA IN FABRICATION

- 1961    Cochrane Foilware Limited assets purchased and a Foil Container Division formed--located at Haas Road, Rexdale, Ontario.
- 1962    Construction of Kingston Centre Plant (wide sheet rolling mill) started.
- ADH Building Supply Limited incorporated under a federal charter. Located in Montreal.
- 1963    Alcan Design Homes Limited become new name of ADH Building Supply Limited.
- 65% interest acquired in Roslyn Metal Products (now Alcan Building Products). Located in Scarborough, Ontario.
- 1964    Alcan Siding Division formed and plant expanded on leased Roslyn property on Warden Avenue, Scarborough, Ontario.
- Almetco Mfg. Corporation Ltd., New Westminster, B.C., window manufacturer, purchased.
- 1965    Shares of Morfoils Limited, Rexdale, Ontario, manufacturers of foil containers, purchased and merged with Foil Container Division.
- Alcan Aurora Limited, extrusion manufacturer, purchased (now Aurora Works).
- Cable Mill built in Stephenville, Newfoundland.
- 1966    Simalex Limited, extrusion manufacturer, purchased (now Laval Works).
- Alcan Pipe Limited incorporated by Alcan Canada and Aluminum Supply Corp. 60% owned by Alcan.
- Purchased outstanding shares of Roslyn. (Now Alcan Building Products).
- 1967    Plant to manufacture Alcan Universal Homes--factory assembled houses--to be in Woodstock, Ontario.

EXHIBIT A-2  
(continued)

- 1968 Alcan Universal Homes plant, Woodstock, Ontario officially opened.
- Acquired 75% of AlSCO Inc., Tru Seal, Silver K, and AlSCO Products Limited. Aluminum building products manufacturers and distributors in Quebec, Maritimes and eastern Ontario.
- 1969 Canada Foils Limited acquired for in excess of \$18 million. Flexible packaging manufacturers in Scarborough, Ontario. Purchase also included casting and foil rolling operation in Bracebridge, Ontario.
- 1970 10% of Zimcor Company of Montreal acquired. Largest architectural metal manufacturers in Canada. Production facilities in Montreal include extrusion press. Represented by sales offices across Canada.
- 1971 Insulated and covered wire and cable plant in Bracebridge started production.
- Bracebridge Works wire and cable plant officially opened. Built at a cost of \$9 million, the plant produces aluminum and copper insulated and covered wire and cable.
- Saguenay Works continuous casting sheet mill officially opened. Through an Alcan-developed technique, reroll coil is produced from molten aluminum in one continuous process.
- 1972 Alcan-Price Extrusions Limited formed in cooperation with E.H. Price Ltd.
- 1973 Acquired Canadian assets of Chicago Metallic Western Ltd., manufacturer of Bake-King aluminum, tin and foil bakeware. Operated by Packaged Foil and Container Group.
- Acquired 75% of Revalex Inc., a Montreal siding installer.
- Installation of a second cold rolling mill in Kingston announced. Investment of \$14 million for equipment and building in the initial stage. Will increase Kingston rolling capacity by 80,000 t.p.a. to 150,000 t.p.a.

EXHIBIT A-2  
(continued)

- 1973     Airmaster of Canada Limited, Lambeth, Ontario, acquired for undisclosed amount. Incorporated in 1958, one of the largest manufacturers of aluminum windows and doors in Ontario.

Acquired assets of Storall Products of Canada (one of Shully group of companies). Management given to Storall Limited. Producer of garden and utility sheds in Toronto.

Lapointe Works, Arvida, Quebec, officially opened. Works can produce 60,000 t.p.a. 3/8" diameter electrical conductor grade rod from molten aluminum in one continuous process. Cost \$4 million. Received total of \$1 million assistance from federal and provincial governments.

- 1974     Rights to manufacture and market Peterborough and Princecraft boats acquired from Giffen Recreation Limited. Located in Princeville, Quebec, plant can manufacture more than 15,000 aluminum and glass fibre boats annually. To be operated as Canadian Boat Division.

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Source: Alcan Publications.



EXHIBIT A-3

ALCAN'S MAJOR FABRICATING INTERESTS

<u>Country</u>	<u>Company</u>	<u>Alcan Equity</u>
Canada	Aluminum Co. of Canada	100.00
U.S.	Alcan Aluminum Corp.	100.00
Mexico	Alcan Aluminio, S.A.	60.90
Brazil	Alcan Aluminio do Brasil, S.A.	100.00
Uruguay	Alcan Aluminio del Uruguay, S.A.	89.94
Venezuela	Alcan de Venezuela	100.00
Colombia	Aluminio Alcan de Colombia, S.A.	80.96
Argentina	Camea S.A.I.C.	35.00
Jamaica	Alcan Products of Jamaica	100.00
Trinidad	Geddes Grant Sproston Industries	49.00
England	Alcan Aluminium (U.K.) Ltd.	100.00
	Alcan Booth Industries Ltd.	75.00
Ireland	Unidare Ltd.	25.50
Norway	A/S Ardal og Sunndal Verk	25.00
Sweden	Granges Essem AB	20.80
Italy	Alcan Alluminio Italiano, S.p.A.	100.00
	Alcan Angelettis and Ciucani Alluminio	100.00
Switzerland	Alcan S.A.	100.00
	Aluminiumwerke A.G. Rorschach	100.00
Belgium	Alcan Aluminium Raeren S.A.	100.00
Germany	Alcan Aluminiumwerke GmbH	100.00
France	Aluminium Alcan de France	100.00
Spain	Empresa Nacional del Aluminio S.A.	25.00
Denmark	Aluminord A/S	*
Indonesia	P.T. Alcan Indonesia	80.00
Malaysia	Aluminum Co. of Malaysia	34.48
Singapore	Precision Metal Industries	50.00
Thailand	Alcan Thai Co. Ltd.	100.00

EXHIBIT A-3  
(continued)

<u>Country</u>	<u>Company</u>	<u>Alcan Equity</u>
India	Indian Aluminum Co. Ltd.	55.27
Japan	Nippon Light Metal Co. Ltd.	50.00
	Toyo Aluminium K.K.	50.00
Australia	Alcan Australia Ltd.	70.00
	Alcan Fabricators Pty. Ltd.	70.00
	Wm. Breit & Co. Pty. Ltd.	70.00
New Zealand	Alcan New Zealand Ltd.	69.21
	Aluminium Anodizers Ltd.	34.61
	Aluminium Conductors Ltd.	25.30
	Horizon Aluminium Products Ltd.	34.61
Ghana	Ghana Aluminium Products	60.00
Nigeria	Alcan Aluminium of Nigeria	72.87
	Flag Aluminium Products Ltd.	65.22
South Africa	Huletts Aluminium Ltd.	24.00
	Republic Aluminium Co. (Pty.) Ltd.	24.00

\*Owned 100% by A/S Ardal og Sunndal Verk.

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Source: Alcan Facts 1974, Public Affairs Department of Alcan Aluminum Ltd., April 1974, Montreal, Canada.

## EXHIBIT A-4

### ALCAN'S SEMI-FABRICATED AND FABRICATED PRODUCTS

#### Semi-Fabricated Products

- extrusions
- plate
- plain, patterned and painted sheet
- foil
- re-roll coil
- redraw rod
- wire
- bare cable
- insulated and covered wire and cable
- aluminum and copper conductor
- service cable
- conductor accessories
- aluminum strip
- sized aluminum power
- aluminum paste
- aluminum based chemicals
- corrugated sheet
- ferro-alloys
- tubing
- castings
- aluminum bar

#### Fabricated Products

- siding
- building accessories
- hygienic ceiling system ceilings
- kiosks
- windows
- doors
- screens
- soffit
- garden sheds
- boats
- refrigerator evaporators
- truck bodies
- vapour seal decks
- specialty aluminum products
- flexible packaging (foil)
- irrigation pipe
- aluminum, tin and foil bakeware
- cooking utensils
- mobile home building products
- roofing
- aluminum high pressure gas cylinders
- curtain walls
- radiators
- pistons
- transmission lines
- partitions
- shipping containers
- architectural products

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Source: Alcan Facts 1974, Public Affairs Department of Alcan Aluminium Ltd., April 1974, Montreal, Canada.

EXHIBIT A-5

ALCAN ALUMINIUM LTD., 1975

A. Bauxite Mining

<u>Country</u>	<u>Company</u>	<u>Alcan</u> <u>Equity</u>	<u>1974</u> <u>Output</u>	<u>% of Alcan</u> <u>Bauxite Supply</u>
Jamaica	AlJam	100	2600 <sup>1</sup>	29
Australia	Queensland Alumina	22	1250 <sup>2</sup>	14
Guinea	Halco Mining Co.	27	1000 <sup>3</sup>	11
Malaysia	Southeast Asia Bauxite	75	880	10
France	Soc. Anonyme des Bauxites	100	540 <sup>4</sup>	6
India	Indian Aluminum Co.	55	500 <sup>5</sup>	5
Brazil	Aluminio Minas Gerais	100	250 <sup>6</sup>	3
Outside Purchases	(Guyana, Surinam, Sierra Leone)		1950	22
TOTAL			8970	100

<sup>1</sup>Equivalent of 1,240,000 tons of alumina

<sup>2</sup>Alcan's share - 500,000 tons of alumina

<sup>3</sup>Alcan's share

<sup>4</sup>Sold to third parties

<sup>5</sup>Equivalent of 200,000 tons of alumina

<sup>6</sup>Equivalent of 100,000 tons of alumina



EXHIBIT A-5  
(continued)

B. Alumina Refining

<u>Country</u>	<u>Company</u>	<u>Alcan Equity (%)</u>	<u>Alumina Capacity (000 st)</u>	<u>%of Alcan's Alumina Supply</u>	<u>Bauxite Source(s)</u>
Canada	Alcan-Arvida	100	1387	29.1	Guyana, Guinea, Surinam
Jamaica	AlJam-Ewarton	100	624	(	Jamaica
	-Kirkvine	100	615	26.0	
Brazil*	Aluminio Minas Gerais, S.A.	100	100	2.1	Brazil
India*	Indian Aluminum Co.	55	210	2.4	India
Japan*	Nippon Light Metal Co. - Shimizu	50	595	(	Malaysia,
	- Tomakomai		367	20.2	Australia
Aus- tralia	Queensland Alumina	22	2700**	12.4	Australia
Total capacity of Alcan and Related Companies			6598		
Capacity wholly owned by Alcan			2726		
Alumina available to Alcan from wholly owned and related companies			4398	92.2	
Outside purchases			370	7.8	
			<hr/> 4768	<hr/> 100.0	

\*Output not marketed by Alcan.

\*\*Alcan received 500,000 tons of alumina from Queensland Alumina in 1974.

EXHIBIT A-5  
(continued)

<u>Country</u>	<u>Company</u>	<u>Alcan Equity (%)</u>	<u>Aluminum Capacity (000 st)</u>	<u>%of Alcan Aluminum Capacity</u>	<u>Alumina Source(s)</u>
Canada	Alcan-Arvida	100	458		Arvida, Jamaica Queens- land
	Alcan-Beauharnois	100	52		
	Alcan-Isle Maligne	100	130		
	Alcan-Kitimat	100	300		
	Alcan-Shawinigan Falls	100	95		
	SUBTOTAL		1035	42.2	
Brazil	Aluminio Minas Gerais, S.A.	100			Brazil Brazil
	-Saramenha		36		
	-Arutu		15		
	SUBTOTAL		51	2.1	
Italy	Alcan Aluminio Italiano	100	4	0.2	
Norway	A/S Ardal og Sunndal	25			Caribbean
	- Ardal		193		
	- Høyanger		33		
	- Sunndalsora		132		
	SUBTOTAL		358	14.6	
	Det Norske Nitidaktieselskap	50			Caribbean
	- Eydehavn		16		
	- Tysseldal		27		
	SUBTOTAL		43	1.9	
Spain	ENDASA	25			Caribbean
	- Aviles		111		
	- Valadolid		27		
	SUBTOTAL		138	5.6	
U.K.	Alcan (U.K.) Ltd.	100	132	5.5	Jamaica

EXHIBIT A-5  
(continued)

<u>Country</u>	<u>Company</u>	<u>Alcan Equity (%)</u>	<u>Aluminum Capacity (000 st)</u>	<u>%of Alcan Aluminum Capacity</u>	<u>Alumina Source(s)</u>
India	Indian Aluminum Co.	55			India
	- Belgaum		73		
	- Alupuram		21		
	- Hirakud		25		
	SUBTOTAL		119	4.9	
Japan	Nippon Light Metal	50			Nippon
	- Kimbara		122		
	- Hokkaido		143		
	- Niigata		160		
	SUBTOTAL		425	17.3	
Australia	Alcan-Australia	70			Queensland
	- Kurri-Kurri		50	2.0	
Sweden	Granges Essem AB	21	95	3.9	
TOTAL ALUMINUM CAPACITY OF					
CONSOLIDATED AND RELATED COMPANIES			2450	100.0	
CAPACITY OF ALCAN'S CONSOLIDATED					
COMPANIES			1391		
1974 ALUMINUM PRODUCTION BY					
CONSOLIDATED AND RELATED COMPANIES			2174		

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Sources: Securities and Exchange Commission, Form 10-K, for Alcan Aluminium Ltd. For the year ended December 31, 1974, pp. 1-17.  
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